Marriage, Divorce and Sorting: A Reassessment of Unilateral Divorce Laws

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August 2018

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January 2018

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Abstract

I evaluate the impact of unilateral divorce laws (UDLs) on the risk of divorce via two distinct channels: the effect on divorce of married couples (*divorce effect*), and the effect on divorce through marital sorting (*sorting effect*). The *divorce effect* affects the divorce probability of all married couples, while the *sorting effect* is only experienced by couples that married after the implementation of UDLs. I use differences in the timing of states' enactment of UDLs as a source of exogenous treatment variation in a difference-in-differences approach. Using the Divorce and Marriage file of Vital Statistics from the NBER data collection, I find that UDLs have a profound impact on marital sorting. The *sorting effect* significantly increases the cumulative risk of divorce within any length of marriage, while the *divorce effect* is only significantly associated with increasing the risk of divorce within the first 9 years and has no effect on subsequent years. Moreover, unstable marriages dissolve faster due to changes in marital sorting. The *sorting effect* increases the risk of divorce in each of the first 5 years of marriage by 4.5%, while there is zero *divorce effect* for these same years. 31% of the initial increase in the overall divorce rate identified in previous studies is due to the sorting effect.

Keywords: Marriage; Divorce; Marital Dissolution; Family Structure; Unilateral Divorce Laws

JEL Classification: J12, K39

1 Introduction

Unilateral divorce laws (UDLs) allow a divorce without requiring proof of fault or spousal consent. In the late 1960s and early 1970s many states participated in a no-fault, unilateral divorce revolution. During the same period, there was a marked rise in the crude divorce rate – the number of divorces per thousand people – that peaked in 1981. The impact of loosening divorce regulations has been the subject of heated debate in the economics literature. By comparing the crude divorce rates pre- and post-implementation, Friedberg (1998) found that UDLs increase crude divorce rates. On the contrary, Wolfers (2006), by examining the dynamic effect of UDLs on divorce rates, found that this rise lasts less than 10 years, which implies that couples married after the reform are not affected as much as those married before the laws were enacted. Many people have interpreted Wolfers results as evidence that unilateral divorce laws led to divorce in an existing stock of unstable marriages, but had a positive, long-term effect on marriage stability.

This paper tests the hypothesis that marriages formed after UDLs are more stable than those formed prior. Using a newly-constructed dataset, I measure the risk of divorce by marriage cohort rather than by crude divorce rates. My results confirm that UDLs are positively associated with divorce rates. However, UDLs decrease the marriage stability of newly-formed marriages, which suggests that the law has a greater influence on the types of marriages created rather than the types of previous marriages dissolved. Newly-formed marriages are less stable than existing marriages regardless of the marriage length. Compared to couples whose marriage and divorce decisions are unaffected by UDLs, the cumulative risk of divorce for couples that married during the post-UDL era is about 7 percent higher for the first 9 years of marriage. In contrast, the cumulative risk of divorce for couples that married before the law and are affected by UDLs at the time of divorce is 2 percent higher than those unaffected by UDLs within the first 9 years of marriage. Moreover, marriages formed in the post-UDL era have persistently higher risks of divorce in each year of marriage, which

indicates that newly-formed marriages dissolve faster than those married before the UDLs.

This is the first study to examine the effect of unilateral divorce laws on cohort-level marriage stability. I evaluate the impact of UDLs on divorce through two distinct mechanisms. The direct and immediate effect of UDLs on the likelihood of divorce of married couples is the reduced cost of divorce, or the *divorce effect*. However, as divorce costs decrease, single people's expectations of marriage change accordingly. Some may regard UDLs as insurance against unstable marriages and enter the marriage market; others may view the law as a deterrent since it increases the likelihood of their spouse breaking the contract. As a consequence, UDLs have a long-term effect on the risk of divorce by changing who gets married and who they marry, which has been understudied in the literature. The effect of UDLs on the risk of divorce through marital sorting is termed the *sorting effect*. Previous studies examine the changes in crude divorce rate, neglecting the unique sorting effect of UDLs on marriage stability, and treat marriages formed under different legal regimes as the same if they dissolved in the same year. My results indicate that 31% of the initial increase in the overall divorce rate these studies find is due to the sorting effect. On average, the sorting effect increases the cumulative risk of divorce for couples married after the implementation of UDLs by 5 percent for any marriage length, and the likelihood of divorce during each of the first 5 years of marriage by 4.5 percent. The *divorce effect*, on the other hand, has a limited impact on the cohort risk of divorce.

A number of studies have evaluated the effect of unilateral divorce laws on divorce. Most previous studies focus on the impact on divorce per 1000 population. Becker (2009), Peters (1986), Peters (1992), and Drewianka (2008) argued that unilateral divorce revolution did not affect divorce rate, or at least was not a major cause of changing family structures. In contrast, Friedberg (1998) argued that 17 percent of the increase in the crude divorce rate between 1968 and 1988 could be explained by the move towards unilateral divorce. Allen

(1992), Mammen (2008), and Gruber (2004) reached similar conclusions as Friedberg (1998): UDLs significantly increased divorce rates.

Wolfers (2006) found UDLs cause a temporary increase in crude divorce rates for the first decade, but a slightly negative long-term effect, which was later confirmed by Kim and Oka (2014). This has been interpreted as evidence that the laws primarily affected those who married before implementation, and that marriages formed after the revolution were more stable than previously-formed marriages. Rasul (2006) suggested that marriages formed after the implementation of UDLs were better matched. Similarly, Mechoulan (2006) argued that women who married after the reform sorted themselves better upon marriage and thus faced lower risks of divorce. However, his sample, which was from the Current Population Survey, was limited in its marriage history and did not contain cohort-specific divorce information. In addition, he assigned treatments based on the marriage year and interview year. Women who married and divorced before the legal reform were treated the same as those who married before the reform but divorced after the changes, if they were interviewed in the same year.[1]

To my knowledge, this is the first study to examine the effect of UDLs on divorce through marital sorting. I employ a difference-in-differences approach with state and year fixed effects. My empirical analysis uses the Marriage and Divorce Vital Statistics data. In order to fully evaluate the sorting effect of UDLs on the risk of divorce, a dissolution of marriage is

[1]In addition to the analysis of the effect on divorce rates, there are many studies that evaluate the effect of unilateral divorce laws on various subjects, which were mostly thought to be generated by changes in the cost of divorce. Mammen (2008) and Olivetti and Rotz (2016) found positive associations between the enactment of UDLs and female employment later in life. Genadek (2014) studied the relationship between unilateral divorce laws and couple-level time allocation and found that married women from states with UDLs spent less time doing housework than those in states without unilateral divorce laws. Stevenson (2007) argued that the adoption of unilateral divorce laws reduced the investment in marriage-specific capital. Johnson and Mazingo (2000), Gruber (2004), and Reinhold et al. (2013) all found negative influences of unilateral divorce on people who were exposed to unilateral divorce in childhood. The investment and outcomes for children were reduced after the legal transition (Cáceres-Delpiano and Giolito, 2008). Fertility also declined due to unilateral divorce (Alesina and Giuliano 2006, 2007). Cáceres-Delpiano and Giolito (2012) and Dee (2003) found that UDLs induced more crimes, while Stevenson and Wolfers (2006) argued that unilateral divorce laws helped to address domestic violence and reduced female suicides as well as the number of women murdered by their partners.

characterized by two critical timing variables: the year of marriage and the year of divorce. If a couple married after the UDLs, their risk of divorce is affected by both the sorting effect and divorce effect; if a couple married before UDLs but divorced after the enactment of the law, the risk of divorce is only affected by the divorce effect. For the *non-affected* cohorts, neither marriage nor divorce decisions are affected by the unilateral divorce reform; Other *partially affected* cohorts are influenced at the time of their divorce but not at time of their marriage. The rest are the *fully affected* cohorts, couples for whom both marriage and divorce decisions are made under the new legal regime. Under this framework, I propose two new ways to measure cohort risks of divorce. The first is to measure the likelihood of divorce within certain years of marriage, which is defined as the cumulative risk of divorce for each marriage cohort. The second is to capture how fast each marriage cohort dissolves, which is defined as the likelihood of divorce during each year of marriage. My findings for the impact of the sorting effect of UDLs on the risk of divorce suggest that the unilateral divorce revolution has profound, long-term influences on family structures.

The rest of the paper proceeds as follows. Section 2 describes my data, while Section 3 describes methodology. Section 4 presents the empirical results and analysis. Section 5 concludes.

2 Data

Prior to modern divorce law reform, a divorce would be granted only if it was a mutual and fault divorce. If either of these conditions failed to be met, couples were forced to stay together, even if it was an unhealthy marriage. Consequently, getting a divorce was quite costly and required considerable effort.

The *unilateral no-fault revolution* in the United States started in the late 1960s. By 1980,

32 states had enacted unilateral divorce laws and 44 had adopted some form of no-fault divorce laws. Both traditional liberal and conservative states allow for unilateral divorce today. The most recent study that provides updated information on states with unilateral divorce laws is Voena (2015).[2] Most reform states adopted a unilateral divorce law between 1968 and 1975, and a few made the transition after 1975. Alaska was the first to adopt a unilateral divorce law in 1935; Ohio was the most recent in 1992. The differences in the timing of states' enactment of UDLs provide sufficient variations for analysis. The years during which unilateral divorce laws were enacted in different states can be found in Appendix A.1 Table 8.

I use the Marriage and Divorce Data of the National Vital Statistics System from the NBER collection of the National Center for Health Statistics (NCHS). The dataset includes 27 states' reports for divorce and marriage happened from 1968-1995.[3] Of these 27 states, Voena (2015) divides them into 19 reform states and 8 non-reform states. Unfortunately, there is no link between the Marriage and Divorce files at the individual level. Risk of divorce is at the state-cohort-level. The number of new marriages formed in a year is calculated using the NBER Marriage file, which is referred as the marriage cohort size. The NBER Divorce file contains marriage information for each divorce. I look across all years of the divorce file to calculate the quantity of divorces from each cohort. The risk of divorce for each cohort is then calculated as the percentage of marriages dissolved by each marriage duration.[4]

[2]Most studies in the literature adopt legal reform information from Gruber (2004). Three states' legal reform years are coded differently in Voena (2015) from Gruber (2004). NM: 1973 in Voena (2015) vs. 1933 in Gruber (2004); OH: 1992 in Voena (2015) vs. No-change in Gruber (2004); WV: 1984 in Voena (2015) vs. No-change in Gruber (2004). Years for OK and AK in Voena (2015) are updated with the information provided in Gruber (2004) since Gruber coded for a specific year that falls within Voena's range.

[3]There are non-digitized data for 1956-1967. The NCHS stopped producing Marriage and Divorce files after 1995 due to a lack of funds. Eight states were not observed for the full time span: CA (1968-1977), DE (1981-1995), DC (1986-1995), MA (1979-1995), NH (1979-1995), and SC (1971-1995). These states are excluded in the empirical analysis.

Friedberg (1998) extended the variable - crude divorce rate - to every state from 1968-1995. Based on Friedberg (1998), Wolfers (2006) extended the crude divorce rate to 1956-1998. I am not able to extend data sample beyond 1968-1995 because the main outcome variable in this study requires detailed marriage information (i.e. year married) for each divorce.

[4]Divorces are not restricted to the first marriages. Marriage duration is calculated based on the length of

2.1 Cohort Risk of Divorce

In previous studies, divorce risk is defined as either the number of divorces per 1000 population, or the number of divorces per 1000 marriages. However, the unilateral divorce revolution alters not only the cost of divorce, but also who sorts into marriage. Couples that are married and divorced under different divorce law regimes have distinct marriage incentives as well as different divorce barriers. Given this definition, previous studies cannot disentangle the effect of these two driving forces on the risk of divorce. In order to estimate the likelihood of divorce across marriage cohorts, this paper measures the risk of divorce as follows:

(1) **Cumulative** risks of divorce of cohort c in state s **within** d years =

$$\frac{\text{num. divorces of cohort c in state s } \mathbf{within\ d\ years}}{\text{num. marriages of cohort c in state s}} \tag{1}$$

(2) **Hazard** risks of divorce of cohort c in state s in the d^{th} year =

$$\frac{\text{num. divorces of cohort c in state s } \mathbf{in\ the}\ d^{th}\ \mathbf{year}}{\text{num. of surviving marriages in year d-1 of cohort c in state s}} \tag{2}$$

Where d represents the length of marriage and the risks of divorce are calculated by years of marriage. The cumulative risk of divorce within d years measures the overall risks of divorce for a marriage cohort within certain years of marriage. The hazard risk of divorce measures the likelihood of divorce in a single year of marriage. The cohort risk of divorce can be affected by the unilateral divorce laws in three ways. First, unilateral divorce laws increase the likelihood of divorce of married couples by reducing divorce costs. Second, unilateral divorce laws change the initial marriage composition of cohorts formed after the law by changing the expectation of marriage stability. Third, though the laws do not affect the initial composition of prior marriage cohorts, the subsequent marriage composition is changed due to the unilateral divorce laws. The cumulative risk of divorce captures overall changes of

a marriage. For example, if a marriage lasts less than 12 months, its marriage duration is 0 (or divorced within 1 year); if it lasts more than 12 months, but less than 24 months, the marriage length equals 1 year (or divorced within 2 years).

the cohort risk of divorce, while the hazard risk of divorce describes the likelihood of divorce during the subsequent years of marriage.[5]

Table 1: Summary Statistics

Panel A: Average risks of divorce							
	Cumulative Risks of Divorce				Hazard Risks of Divorce		
Divorce within	Reform	Non-reform	Total	Divorce at	Reform	Non-reform	Total
1yrs	0.025	0.012	0.021	1st yr	0.025	0.012	0.021
2yrs	0.068	0.040	0.060	2nd yr	0.045	0.028	0.040
3yrs	0.110	0.074	0.104	3rd yr	0.050	0.036	0.046
4yrs	0.160	0.111	0.146	4th yr	0.050	0.039	0.047
5yrs	0.200	0.145	0.184	5th yr	0.047	0.038	0.045
6yrs	0.230	0.176	0.218	6th yr	0.044	0.036	0.042
7yrs	0.270	0.205	0.248	7th yr	0.040	0.033	0.038
8yrs	0.294	0.230	0.275	8th yr	0.037	0.031	0.035
9yrs	0.318	0.251	0.298	9th yr	0.034	0.028	0.032
10yrs	0.397	0.271	0.319	10th yr	0.031	0.026	0.029
11yrs	0.358	0.289	0.338	11th yr	0.029	0.024	0.027

Panel B: characteristics of marriage cohort						
	Reform			Non-reform		
	Mean	Min	Max	Mean	Min	Max
White %	0.871	0.320	0.986	0.840	0.176	0.994
DW Score	-0.039	-0.631	0.646	-0.073	-0.412	0.434
Age gap	2.601	1.954	3.375	2.654	2.040	3.149
Age gap (abs.)	4.072	2.838	5.034	4.255	3.218	4.936
Groom age	29.190	24.285	33.950	29.770	26.310	34.121
Bride age	26.590	21.950	31.290	27.116	23.779	31.863
Remarried groom	31.380%	0	45.786%	31.681%	0	50.722%
Remarried Bride	31.405%	0	47.946%	30.606%	0	52.977%

Note: Data source for marriage and divorce is Vital Statistics Divorce and Marriage file, and DW-scores of senator can be found at https://legacy.voteview.com/dwnomin.htm.
Panel A reports the average risks of divorce, in terms of cumulative (left four columns) and hazard (right four columns), in the first 11 years of marriage and by reform and non-reform states. Panel B reports the characteristics of marriage cohorts in terms of (1) percentage of new marriages that both spouses are whites, (2) average DW-scores, (3) average groom-bride age gap , (4) absolute value of groom-bride age gap, (5) age at marriage of groom, (6) age at marriage of bride, (7) percentage of grooms that are not at the first marriage, (8) percentage of brides that are not at the first marriage.

Table 1 describes the average risks of divorce across different marriage length as well as the characteristics of marriage cohorts for the categories of reform states, non-reform states, and all states. The cumulative risk of divorce and hazard risk of divorce in reform states are higher than the non-reform states for all marriage length. In both reform and non-reform states, the cumulative risk of divorce increases at longer length of marriage, while the hazard risk of divorce increases in the first several years and declines in the later years of marriage.

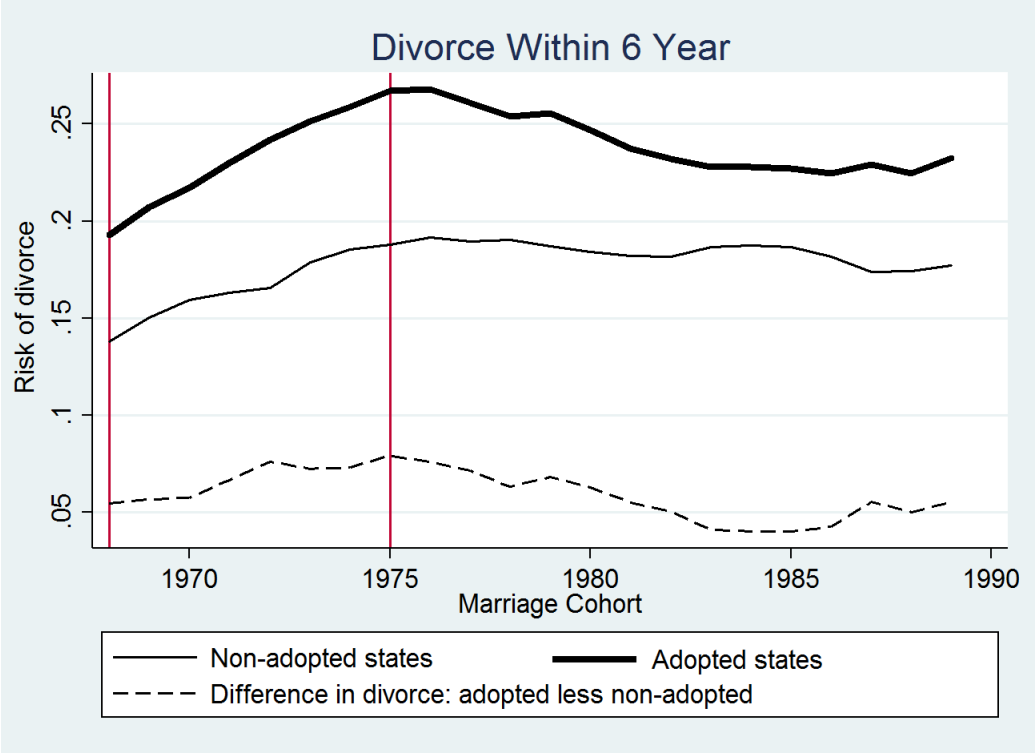
[5]Due to the sample limitation, the data is not restricted to couples who were married and divorced in the same state. States began to report marriage state of a divorce in 1972 and the empirical analysis suffers from losing pre-periods of reform states by restricting to the post-1972 periods.

Since cumulative risk of divorce includes all divorces of a marriage cohort within a given marital length, the number of divorces in a cohort increases when more years of marriage are observed. Hence, there are higher cumulative risks of divorce in later years of marriage in both types of states. However, the cumulative risk of divorce in reform states increases faster than in non-reform states. The hazard risk of divorce, in contrast, describes the risk of divorce in a single year of marriage conditional on the number of surviving marriages. Unstable marriages tend to dissolve faster than those that are better matched. The size of surviving marriages shrinks over time as unstable marriages dissolve, which makes the surviving marriages more stable than in the previous years. This explains why there are higher hazard risks of divorce in early years than in later years of marriage. However, the hazard risk of divorce in reform states increases faster than in non-reform states during the first several years of marriage, meaning that there are more unstable marriages dissolving in the early years of marriage in reform states than in non-reform; it declines faster in the later years, indicating that surviving marriages in later years are more stable in reform states than in non-reform states. The average percentage of white couples is about the same for both reform and non-reform states. DW-score evaluates how liberal a state is, where 1 represents extremely conservative and -1 represents extremely liberal. The average DW-score indicates that the reform and non-reform states are about the same politically. All other marriage characteristics of the reform and non-reform states show that they are no different in terms of average groom-bride age gap, absolute groom-bride age gap, groom age, bride age, and percentage of remarried grooms and brides.

Figure 1 shows the cumulative risk of divorce of cohort 1968-1989 within 6 years of marriage[6] by reform and non-reform states. Marriages from reform states face higher cumulative risks of divorce than marriages from non-reform states. The crude divorce rate in Figure 2 is from Wolfers (2006). There are higher divorce per 1000 population in reform states since the

[6]The last cohort that can be observed with a 6-year marriage history in my data sample is 1989.

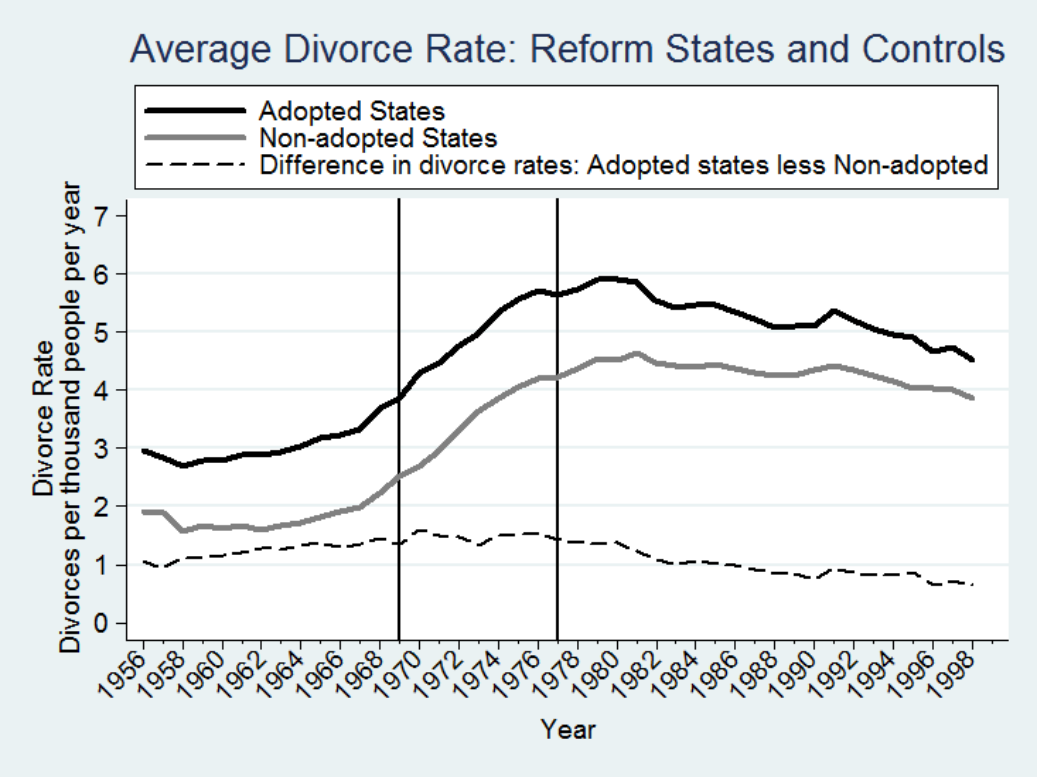
Figure 1: Cohort Risk of Divorce within 6 years



mid-1950s. The increasing divorce rate reached a peak after most reform states completed the transition to unilateral divorce. Both cohort cumulative risk of divorce and crude divorce rates exhibit an upward trending in the late 1960s and early 1970s. The gap between reform and non-reform states for both cohort risks of divorce and crude divorce rates widened during the periods where many states enacted the unilateral divorce laws and shrank thereafter.

To illustrate the changes in the cohort risk of divorce, Figure 3 describes the survival rate of the 1970 marriage cohort within the first 10 years of marriage. Marriage survival rate is measured as the number of surviving marriages in each subsequent marital year divided by total number of marriages formed in the same year. The survival rate of reform states that had enacted unilateral divorce laws by 1970 declines the fastest, whereas the survival rates of reform states that had yet to pass the law by 1970 as well as non-reform states are similar, and both are higher than the reform states. Figure 3 shows that marriages formed af-

Figure 2: Crude Divorce Rate



Source: Wolfers [2006]

ter the unilateral divorce laws dissolve faster and face higher risks of divorce than those are not.

2.2 Replication of Wolfers (2006)

The Divorce file of the NBER Vital Statistics collection included 27 states from year 1968 to 1995 and 6 states with fewer sample years.[7] Wolfers (2006)'s empirical analysis is based on a larger panel of data with additional states and years. Since the risk of divorce is defined differently in this study than Wolfers (2006), it is reasonable to investigate whether the sample difference leads to different results.

[7]Crude divorce rate does not require a full marital history of each cohort. Thus, states with missing years could still provide accurate crude divorce rates.

Table 2: Replicate Table 2 of Wolfers (2006)

	(1)	(2)	(3)	(4)
First 2 yrs	0.302***	0.401***	0.428***	0.201**
	(0.0538)	(0.0635)	(0.0703)	(0.0808)
Years 3-4	0.289***	0.461***	0.364***	0.275**
	(0.0648)	(0.0891)	(0.104)	(0.119)
Years 5-6	0.291***	0.529***	0.364***	0.403***
	(0.0791)	(0.117)	(0.135)	(0.155)
Years 7-8	0.351***	0.650***	0.433***	0.506***
	(0.0966)	(0.145)	(0.164)	(0.188)
Years 9-10	0.161	0.509***	0.361*	0.398*
	(0.117)	(0.174)	(0.195)	(0.225)
Years 11-12	0.0469	0.404**	0.283	0.353
	(0.142)	(0.203)	(0.228)	(0.262)
Years 13-14	0.0315	0.396*	0.255	0.288
	(0.167)	(0.231)	(0.262)	(0.301)
Year 15	0.251	0.601**	0.377	0.339
	(0.205)	(0.261)	(0.306)	(0.352)
Data	Wolfers(2006)	Wolfers(2006)	Wolfers(2006)	Shen(2017)
Year	56-88	68-88	68-88	68-88
State	51	51	33	33
Observations	1631	1043	624	624

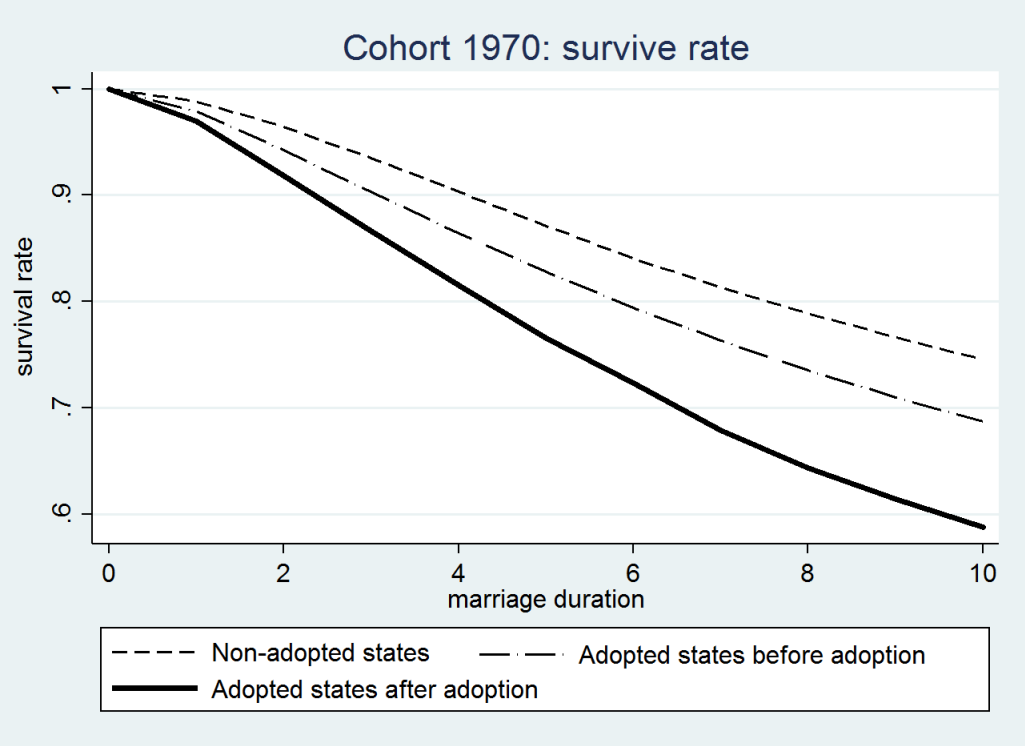
Standard errors in parentheses. Weighted by state population

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This is a replication of Table 2 in Wolfers (2006) based on the main specification. Wolfers (2006) data is available on the author's website and is public accessible.

State- and year-fixed effects and state-specific linear time trends are controlled. Results of column 1 to 3 are based on the data of Wolfers (2006) and results of column (4) are are based on my data. Outcome variable of all columns is the crude divorce rate defined as divorce per 1000 population. Results shown in column 1 are identical to results of Table 2 in Wolfers (2006). Results in Column (2) restrict Wolfers's data to year 1968-1988, while results in column (3) restrict to both 1968-1988 and my sample of states. Column (4) is based on my data. My replication of Wolfers (2006) is consistent with his findings.

Figure 3: Cohort 1970 Marriage Survival Rate



I replicate the main results of Wolfers (2006) in Table 2. The results in the first three columns are based on sample in Wolfers (2006).[8] Results in Column 1 are identical to Column 3 of Table 2 in Wolfers (2006), which is based on 50 states and D.C. from 1956 to 1988. Results in Column 2 are based on the sample period from 1968 to 1988. Cutting the sample period decreases the magnitude of coefficient estimations, but maintains the direction of the impact. Column 3 reports the results by cutting the sample period to the 21 years and 33 states represented in my data, and the results are similar. Column 4 reports my replication of Wolfers (2006) using my data from 1968-1988, and again finds similar results. In sum, these results show that using a smaller data sample can still derive results similar to the literature; thus, the various findings in the following sections are mainly driven by the specifications proposed in this paper.

[8]Wolfers (2006)'s data can be downloaded from the author's website (http://users.nber.org/ jwolfers/index.php).

3 Methodology

In previous studies, treatments were assigned based on the year of divorce. However, marriages that dissolved in the same year under unilateral divorce laws are not affected the same way. Unilateral divorce laws directly reduce the cost of divorce of married couples; meanwhile, switching to unilateral divorce changes the expectation of single people on marriage stability. Therefore, the choice of marriage and decision to divorce are both altered for those who married after the unilateral divorce laws. For those are married when the laws are enacted, only the divorce decisions are affected. Since unilateral divorce laws affect couples differently, depending on the year of marriage and year of divorce, the types of marriages can be described as follow:

$$Treatment_{sc}^{d} = \begin{cases} \textbf{Non-affected} \text{ if Cohort} < \text{UDL \& Cohort} + \text{d} < \text{UDL} \\ \textbf{Partially affected} \text{ if Cohort} < \text{UDL \& Cohort} + \text{d} \geq \text{UDL} \\ \textbf{Fully affected} \text{ if Cohort} \geq \text{UDL \& Cohort} + \text{d} \geq \text{UDL} \end{cases} \tag{3}$$

Cohort refers to the marriage year. A couple that married and divorced before the enactment of UDLs belongs to the non-affected group, since neither marriage nor divorce decisions were influenced by the UDLs.[9] If a couple married before the law but stayed together long enough for the law to be enacted, they belong to the partially affected group, since only the divorce decision was affected by the law. If the couple was married under the UDLs, then both marriage and divorce decisions are exposed to UDLs; thus, they are considered as fully affected.

Non-affected and partially affected couples were married before the reform. The only difference is that partially affected couples are exposed to lower costs of divorce due to the

[9]The assumption here and in the rest of this paper is that people do not anticipate the transition to unilateral divorce.

unilateral divorce laws. Thus, the difference of cohort risks of divorce between the non-affected and partially affected groups is the result of the *divorce effect* of unilateral divorce laws. Furthermore, the divorce risk of the fully affected group varies from the non-affected group in two ways. The first difference comes from the divorce effect of unilateral divorce laws on the divorce decision for similar, partially affected groups. The second is the *sorting effect*, or the effect of unilateral divorce laws on the risk of divorce through marital sorting. Therefore, in order to precisely capture the influences of the unilateral divorce revolution, the effects of unilateral divorce laws on the risk of divorce are defined as follows:

$$\text{Divorce Effect}^d_{sc} = \begin{cases} \textbf{0} \text{ if non-affected} \\ \\ \textbf{1} \text{ if partially or fully affected} \end{cases} \tag{4}$$

$$\text{Sorting Effect}^d_{sc} = \begin{cases} \textbf{0} \text{ if non-affected or partially affected} \\ \\ \textbf{1} \text{ if fully affected} \end{cases} \tag{5}$$

I employ a *difference-in-differences* (DD) approach to estimate the impact of unilateral divorce laws on the marriage cohort risk of divorce, and use the differences in the timing of states' enactment of UDLs as a source of exogenous treatment variation. The empirical analysis is based on reduced form models, expressed as follows:

$$\begin{aligned} RiskDivorce^d_{sc} = \alpha^d_0 + \alpha^d_1 \textbf{1\{Divorce Effect\}} + \alpha^d_2 \textbf{1\{Sorting Effect\}} \\ + \beta^d_s + \gamma^d_c + \delta^d_s * T + u^d_{sc} \end{aligned} \tag{6}$$

Marriage duration is fixed for each regression. The outcome variables are the risk of divorce defined in eq. (1) and eq. (2). **1{Divorce Effect}** equals 1 if the divorce decisions were made under the unilateral divorce laws, while **1{Sorting Effect}** equals 1 if the marriage decisions were made under the new laws. α^d_1 measures how the risk of divorce of partially and fully affected cohorts were directly caused by lowering the cost of divorce, while α^d_2

captures the effect of unilateral divorce laws on the risk of divorce through marital sorting. As partially affected cohorts are only affected by the divorce effect, α_1^d also measures the impact of unilateral divorce laws on the partially affected cohorts. For fully affected cohorts, the total effect of unilateral divorce laws on the risk of divorce equals the sum of sorting effect and divorce effect, which is the sum of α_1^d and α_2^d. Accordingly, the empirical analysis can be performed as:

$$\begin{aligned} RiskDivorce_{sc}^d = \theta_0^d + \theta_1^d \mathbf{1\{Partially\ affected\}} + \theta_2^d \mathbf{1\{Fully\ affected\}} \\ + \beta_s^d + \gamma_c^d + \delta_s^d * T + u_{sc}^d \end{aligned} \tag{7}$$

where θ_1^d equals α_1^d, and θ_2^d equals α_1^d plus α_2^d. β_s^d and γ_c^d capture the state-fixed effects and the marriage year-fixed effects, respectively. Since marriage duration is fixed for each regression estimation, the marriage year-fixed effects are equivalent to the divorce year-fixed effects. $\beta_s^d * T$ is the state-specific linear trend, which captures the states' varying characteristics over time. For robustness checks, I estimate (7) without state-specific linear trends and with state-specific quadratic time trends, both of which will be discussed in the following sections.

The crude divorce rates under the unilateral divorce laws include the divorces of the partially affected and the fully affected cohorts. Changes in the crude divorce rates after the unilateral divorce laws can be attributed to changes in the risk of divorce of these two groups. Previous studies found that crude divorce rates initially increased and declined afterwards due to unilateral divorce laws, suggesting that the laws primarily affected the risk of divorce of those who were married before implementation. Hence, according to the literature, α_1^d and θ_1^d are expected to be positive, meaning that the existing marriages are more likely to be dissolved within a given length of marriage. Moreover, θ_2^d is predicted to be non-positive, since new marriages formed under the unilateral divorce laws are expected to be unaffected.

Accordingly, α_2^d is expected to be negative.

In order to test the identifying assumption that what happened in the non-reform state would have occurred in the reform states in the absence of the unilateral divorce laws, I plot the differences in the cohort risk of divorce between treated and untreated states, conditional on state and year-fixed effects, and state-specific linear time trends. Plots for the parallel trends test can be found in Appendix A.3. On the left are the trends for the cumulative risk of divorce, and the hazard risks of divorce trends are featured on the right. Each row corresponds to a specific length of marriage. For instance, Figures (e) and (f) illustrate the cumulative risks of divorce within 4 years of marriage as well as the hazard risk of divorce in the 4^{th} year of marriage, respectively.

The *timevar* refers to the gap between the marriage year and the enactment year of the unilateral divorce laws. For example, zero refers to the cohort that got married when the law was enacted; negative one and positive one correspond to cohorts that married a year before and a year after the law was enacted, respectively. The plot to the left of the first vertical line is the difference between non-reform states and reform states before the enactment of the law; the plot between the two vertical lines is the difference between marriages in non-reform states and partially affected marriages in reform states; and the plot to the right of the second vertical line is the difference between marriages in non-reform states and fully affected marriages in reform states. The flat trends to the left of the first vertical line show that there is no difference between non-reform states and reform states prior to the implementation of the laws; therefore, the underlying assumption is satisfied. In addition, there were no significant changes in the partially affected cohorts, compared to the non-affected cohorts, suggesting that the risk of divorce of couples married under traditional divorce laws does not increase when exposed to lower costs of divorce. Moreover, the flat trends to the left of the second vertical line imply that people did not respond to the future policy prior to its implementation.

4 Empirical Analysis

This section features an empirical analysis of the impact of unilateral divorce laws on the risk of divorce. The main specifications are based on eq. 6 and eq. 7. I discuss the major results of the paper, followed by discussion of heterogeneity and robustness checks to support the main findings.

4.1 Main Results

I first examine the effects of unilateral divorce laws on cohorts' cumulative risks of divorce. Panel A of Table 3 reports the divorce effects and sorting effects of unilateral divorce laws on the cumulative risk of divorce. Each column reports the effect of the laws on the risk of divorce, given a specific marriage length. The cumulative risk of divorce within 6 years of marriage includes all divorces in the first five years, for instance. If a couple divorces within a year, the divorce effect cannot be separated from the sorting effect of UDLs since the marriage and divorce decisions are made in the same year, and thus α_1 and α_2 cannot be correctly estimated. Panel B of Table 3 shows the effect of unilateral divorce laws on the different treated groups. Since partially treated cohorts are only affected by the divorce effect, the coefficient estimates of the divorce effect and of partially affected groups are identical, whereas the effects on fully affected cohorts are the sum of the divorce and sorting effects.

The divorce effects of unilateral divorce laws on the cumulative risk of divorce are around zero within any length of marriages, except for the risk of divorce within 9 years of marriage.[10] In the early and late periods of marriage, the divorce effects slightly decrease the cumulative

[10]By running ten different regressions, the divorce effect on the risks of divorce within 9 years of marriage could be a false positive.

Table 3: Cumulative Risks of Divorce

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: by types of effects					
Divorce Effect	-0.00291	-0.00170	-0.00146	0.00354	0.00492	0.00261	0.00401	0.00692*	-0.00127	-0.00208
	(0.00268)	(0.00318)	(0.00369)	(0.00409)	(0.00489)	(0.00573)	(0.00463)	(0.00367)	(0.00511)	(0.00563)
Sorting Effect	0.00458**	0.00575**	0.00703*	0.0102*	0.0118*	0.0139**	0.0148**	0.0151**	0.0178**	0.0188**
	(0.00183)	(0.00273)	(0.00392)	(0.00536)	(0.00588)	(0.00619)	(0.00644)	(0.00654)	(0.00706)	(0.00709)
					Panel B: by treated groups					
Partially Treated	-0.00291	-0.00170	-0.00146	0.00354	0.00492	0.00261	0.00401	0.00692*	-0.00127	-0.00208
	(0.00268)	(0.00318)	(0.00369)	(0.00409)	(0.00489)	(0.00573)	(0.00463)	(0.00367)	(0.00511)	(0.00563)
Fully Treated	0.00167	0.00405	0.00557	0.0137**	0.0167**	0.0165**	0.0188**	0.0220***	0.0165**	0.0168**
	(0.00360)	(0.00405)	(0.00457)	(0.00541)	(0.00604)	(0.00664)	(0.00681)	(0.00687)	(0.00679)	(0.00728)
Observations	727	700	673	646	619	592	565	538	511	484

Standard errors in parentheses, clustered by state. Weighted by state population.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Data source is the Divorce and Marriage file of Vital Statistics. The outcome variable is the cumulative risk of divorce defined in 1. The The variables of interest are the divorce effect, sorting effect of unilateral divorce laws, and the effect of UDLs on partially affected cohorts and fully affected cohorts. Each column represents a specific length of marriage. Marriage formed in different years are compared at the same year of marriage. State- and year-fixed effects and state-specific linear time trends are controlled. The estimates are weighted by state population. If a marriage dissolves within a year, the divorce and sorting effect on the partially treated cohorts cannot be separated. Thus, divorce within a year is omitted.

risk of divorce, though not in a statically-significant manner. Given the additional risks in the later years of marriage, the divorce effect on the cumulative risk of divorce increases with longer length of marriage and peaks within the first 9 years of marriage. The divorce effect of UDLs increases the cumulative risk of divorce by 0.69 percentage points, which is equivalent to a 2.32 percent increase in the cumulative risk of divorce. One would expect a higher divorce rate when the cost of divorce decreases. However, married couples may not be affected by lower costs of divorce if the initial match quality is high.

Conditional on the cost of divorce, the risk of divorce is expected to increase when a marriage becomes fragile. If the initial quality of a marriage is reduced by the unilateral divorce laws, the cumulative risk of divorce will be higher throughout the earlier and later periods of marriage. In contrast to the divorce effects, the sorting effects shown in Panel A Table 3 are positive and significant across any marriage length. The sorting effects of unilateral divorce laws on the cumulative risk of divorce steadily increase as marriage duration grows. It increases the cumulative risk of divorce by 0.46 percentage points (column 1) for marriages that last two years or less, which equivalent to an 8 percent increase in the two-year

cumulative risk of divorce. The sorting effect of cumulative risk of divorce within 11 years of marriage (column 10) is about 4 times higher than divorce within 2 years (column 1). Since the average cumulative risk of divorce within 10 years is 6 times higher than within 2 years, the percentage increase in the risk of divorce within 11 years caused by the sorting effect is actually less than that for divorce within 2 years. There is about a 6 percent increase in the cumulative risk of divorce within 11 years caused by the sorting effects. On average, the sorting effect of unilateral divorce laws increases the risk of divorce within any length of marriage by 5 percent.

The partially affected cohorts are affected only when deciding to divorce. The zero divorce effects indicate that, when transitioning to the new divorce law era, the partially affected cohorts are not worse off than the non-affected cohorts. On the contrary, the non-zero positive sorting effects suggest that marriages formed under the unilateral divorce laws have higher cumulative risks of divorce within different length of marriage than partially affected and non-affected cohorts. Panel B in Table 3 reports the effects of unilateral divorce laws on partially affected and fully affected marriages, compared to the unaffected marriages. Partially affected couples have a 2.32 percent higher divorce rate within the first 9 years of marriage than the unaffected groups, but do not face significantly higher risks of divorce in the rest years of marriage. Within the first several years, fully affected cohorts are not significantly influenced by unilateral divorce laws, as the divorce effect and sorting effect cancel each other out. As marriages last longer, the sorting effect strengthens and gradually surpasses the divorce effect. Accordingly, the risk of divorce within the first 5 years of marriage increases by 1.4 percentage points or 7 percent. The effect of UDLs on the cumulative risk of divorce of fully affected cohorts peaks within the first 9 years of marriage. The cumulative risk of divorce of fully affected cohorts is 2.2 percentage points higher than the unaffected cohorts. The higher sorting effects as well as the total effects reveal that fully affected cohorts are exposed to higher risks of divorce than the other two groups. Moreover, the fact that the sorting effect is larger than the divorce effect indicates that the increase in divorce risk for

fully affected marriages is mainly caused by changes in the initial marriage quality.

Table 4: Hazard Risks of Divorce

Divorce at	(1) 2nd yr	(2) 3rd yr	(3) 4th yr	(4) 5th yr	(5) 6th yr	(6) 7th yr	(7) 8th yr	(8) 9th yr	(9) 10th yr	(10) 11th yr
Panel A: by types of effects										
Divorce Effect	-0.00136	0.000101	0.000684	0.00102	0.00120	0.00184	0.000981	0.00360***	0.000622	0.00122*
	(0.00193)	(0.00188)	(0.00136)	(0.00148)	(0.00134)	(0.00117)	(0.00120)	(0.000786)	(0.000635)	(0.000698)
Sorting Effect	0.00239*	0.00200	0.00160	0.00284	0.00120	0.00136	-0.0000685	-0.000265	0.000884	0.000953
	(0.00134)	(0.00191)	(0.00208)	(0.00215)	(0.00163)	(0.00151)	(0.00169)	(0.00148)	(0.00143)	(0.00105)
Panel B: by treated groups										
Partially Treated	-0.00136	0.000101	0.000684	0.00102	0.00120	0.00184	0.000981	0.00360***	0.000622	0.00122*
	(0.00193)	(0.00188)	(0.00136)	(0.00148)	(0.00134)	(0.00117)	(0.00120)	(0.000786)	(0.000635)	(0.000698)
Fully Treated	0.00103	0.00210	0.00228*	0.00386*	0.00240	0.00320*	0.000913	0.00334*	0.00151	0.00217**
	(0.00199)	(0.00154)	(0.00133)	(0.00213)	(0.00205)	(0.00177)	(0.00238)	(0.00196)	(0.00160)	(0.000868)
Observations	727	700	673	646	619	592	565	538	511	484

Standard errors in parentheses, clustered by state. Weighted by state population.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Data source is the Divorce and Marriage file of Vital Statistics. The outcome variable is the hazard risk of divorce defined in 2. The The variables of interest are the divorce effect, sorting effect of unilateral divorce laws, and the effect of UDLs on partially affected cohorts and fully affected cohorts. Each column represents a specific length of marriage. Marriage formed in different years are compared at the same year of marriage. State- and year-fixed effects and state-specific linear time trends are controlled. The estimates are weighted by state population. If a marriage dissolves within a year, the divorce and sorting effect on the partially affected cohorts cannot be separated. Thus, divorce within a year is omitted.

Table 4 reports the impact of unilateral divorce laws on the hazard risk of divorce as defined in eq. 2. There is little divorce effect in the early years of marriage, and only a slightly higher hazard risk of divorce during the later years of marriage. Sorting effects increase the hazard risks of divorce during the early years of marriage and have zero impact during the later years. Unstable matches among the newly-formed marriages dissolve fast due to unilateral divorce laws during the early periods. Once unstable marriages dissolved, the hazard risk of divorce is lower. On average, the sorting effect increases the hazard risk of divorce in each of the first 5 years by 4.5 percent.[11]

As for the partially affected couples, the divorce effect has no impact on the risk of divorce in a single year of marriage. In contrast, fully affected couples have higher risks of divorce during early and later years of marriage. Early-year hazard risks of divorce are

[11]Though only divorce during the second year was statistically increased by the sorting effect of unilateral divorce laws, I cannot reject that the coefficient estimates for the second, third, forth and fifth years of marriage are different at the 5 percent significance level.

mainly attributed to the sorting effects, while later-year divorces are mostly caused by the divorce effects. Unilateral divorce laws grant a divorce without requiring proof of fault or spousal consent. If people take UDLs as insurance for unstable marriages, and are more likely to enter or re-enter a riskier marriage under unilateral divorce laws, it will lead to higher risks of divorce and faster divorces. Unstable marriages are washed out when marriages are still young, and marriages that survived the shaky years are typically better matched. Even for the relatively better matched couples, however, the risk of divorce in the later years of marriage is still increased due to the lower cost of divorce. There are higher hazard risks of divorce during the 7^{th}, 9^{th}, and 11^{th} years of marriage for couples married after the law compare to those who were not affected. This implies that, the threshold for a couple staying together is increased by unilateral divorce laws, ceteris paribus.

4.2 Interpretation

The partially affected cohorts are married prior to and divorced after the reform. Thus, the marriage decisions of partially affected couples are not affected by UDLs, assuming no anticipation of the reform; on the other hand, decisions about exiting a marriage were affected. Conditional on the initial match quality, I find that reducing the cost of divorce has no significant impact on the risk of divorce, especially for partially affected cohorts. This indicates that marriages formed before the unilateral divorce reform have a high enough quality that even when exposed to lower costs of divorce, their rate of divorce does not increase. Fully affected marriages have much higher cumulative and hazard risks of divorce than the partially affected couples due to the sorting effect, suggesting that unilateral divorce induces more unstable marriages.

My results confirm that marriages formed after UDLs are different from marriages formed previously. Cohorts formed before UDLs face similar risks of divorce, regardless of divorce

regime. However, UDLs increase the risk of divorce of marriages formed after the law, especially through marital sorting. Unilateral divorce laws are expected to influence marriage stability in two ways. First, the direct and immediate effect of switching to unilateral divorce reduces the cost of divorce for married couples. Marriages exposed to UDLs are allowed to file for divorce without proof of fault or spousal consent. Consequently, switching to unilateral divorce law change the likelihood of divorce altogether. Second, the easier divorce environment has different impact on individuals with different preference of marriage. Individuals who dislike making commitments or who are afraid of being trapped in an unstable marriage possess a lower marriage entry threshold due to UDLs. However, people who are serious about marriage may have been deterred to marry since there is a higher probability that their future spouse will file for divorce.

The unilateral divorce laws change the costs and benefits of marriage, but not equally across all individuals. Individuals who know they are likely to make poor marriage decisions or be poor partners see a large increase in the value of marriage – they can easily dissolve their mistakes. This increases the number of unstable marriages that are formed, and the pool of "bad partners" in the dating pool. Individuals who are good partners or unlikely to make a poor marriage decision see almost no direct benefit. But the fact that there are now more "bad partners" in the dating pool creates an indirect cost which could cause some individuals to delay or forego marriage. As shown in Rasul (2004), unilateral divorce laws cause a reduction in marriage rate. Results on the fully affected cohorts indicate that UDLs increase the likelihood of divorce of newlyweds and create more *reckless marriages* though martial sorting. Together with findings in Rasul (2004), the higher risk of divorce among newly formed marriages is more likely to be induced by the fact that "good partners" delay marriage and that there are more "bad partners" in each newly formed marriage cohort. Consequently, the unilateral divorce laws altered the composition of marriage, which is captured by the sorting effects in the empirical analysis. Furthermore, changes in the marriage composition

alter the risk of divorce in the long-run, since riskier marriages result in higher probabilities of dissolution.

Based on the effect of the UDLs on the hazard risk of divorce, I further calculate how much of the increase in the overall divorce rate caused by UDLs in the first two years following the enactment is attributed to the sorting effect. Because the range of my sample is 11 years of marriage, the oldest cohort impacted by the divorce effect are those who married nine years prior and divorced during the first year of the enactment of the UDLs. Similar iterations apply to other younger cohorts.[12] In general, in the first two years following the enactment of the law, there are 10 cohorts in my sample that are affected by the UDLs through the divorce effect, while 3 cohorts are affected through the sorting effect. According to Table 4, I find that 31 percent increase in the divorce caused by UDLs in the first two years after the enactment is attributed to the sorting effect, indicating that marriages formed after the law contribute a significant amount to the initial increase in the overall divorce rate.

4.3 Unilateral Divorce Impact on Characteristics of Marriage

In order to investigate how unilateral divorce affects marital sorting, I further examine how marriage characteristics change after the revolution and separately evaluate the marriage characteristics for white marriages[13]. Evidence of how unilateral divorce laws affect marriage characteristics are presented in Table 5. The marriage characteristics of each cohort are measured on three dimensions and by gender: average age at marriage of the groom and bride, age gap and the absolute value between the groom and bride, and the rate of remarried grooms and brides. Panel A of Table 5 reports the effects of unilateral divorce laws on the marriage characteristics of white couples. Panel B reports the effects on all racial and ethnic

[12]For example, couples that married a year before the law can divorce in the first year of the enactment of the law, which is equivalent to divorce in the second year of marriage.

[13]Due to data limitation, I cannot look at other races individually

groups. According to column 1 and 2 in panel A, the average groom age and bride age of white couples are increased by 0.32 and 0.23 years, respectively, though this increase is not statistically significant for brides. Meanwhile, the average age gap between white grooms and white brides are widened by 0.09 years (column 3), implying that white grooms are 0.09 years older than white brides under the unilateral divorce era. The absolute average age gap shown in column 4 measures the dissimilarity of spouses disregarding gender. It shows that, on average, whites are more likely to marry with someone much younger or older than themselves. Compared to the age characteristics of white marriages, the increases in the groom and bride ages of the overall marriages are about 0.16 and 0.11 years, respectively, which are less than half of the increase of age for white marriages. In addition, the disparity in the spousal age gap is much smaller for overall marriages than white marriages: 0.045 years increase for grooms and 0.062 years increase in the dissimilarity between spouses. The last two columns feature how unilateral divorce laws affect remarriages. Results for white marriages show that the remarriage rate of grooms, regardless of the marital history of the bride, increases by 2.4 percentage points or 7.6 percent. A similar increase is identified for white brides. Nonetheless, the evidence on the remarriage rate of grooms and brides is limited to whites. The increases in the age of grooms and brides at marriage can also be attributed to increased remarriage rates due to UDLs. The effects of unilateral divorce laws on marriage characteristics provide evidence about changes in the marriage composition, particularly for white marriages. Unilateral divorce laws increase the likelihood of remarriage among white couples, while second marriages and beyond are correlated with older grooms and brides. Older white men are more likely to get remarried due to unilateral divorce laws, and remarried white people are more likely to marry someone significantly older or younger than themselves. Additional evidence is required to answer who sorts into marriage and who marries whom. However, these questions are beyond the focus of this study. Future work will investiage on the effect of UDLs on the marriage composition.

Table 5: Marriage Characteristics

	(1) Avg. groom age	(2) Avg. bride age	(3) Avg. age gap	(4) Avg. absolute age gap	(5) Rate of remarried groom	(6) Rate of remarried bride
			Panel A: characteristics of white couples			
UDL	0.323*	0.230	0.0929***	0.107**	0.0235**	0.0202*
	(0.183)	(0.165)	(0.0326)	(0.0505)	(0.0107)	(0.0105)
Observations	625	625	625	625	625	625
			Panel B: characteristics of all couples			
UDL	0.155*	0.110	0.0451	0.0624**	0.00755	0.00275
	(0.0856)	(0.0814)	(0.0298)	(0.0293)	(0.00599)	(0.00666)
Observations	754	754	754	754	754	754

Standard errors in parentheses, clustered by state.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The outcome variables describe characteristics of marriage formed in different years. Data source is the Marriage file of Vital Statistics. Outcome variables from column 1 to 6 are: (1) average age of groom at the year of marriage, (2) average age of bride at the year of marriage, (3) average age gap between groom and bride, (4) absolute value of average age gap between groom and bride, (5) percentage of grooms that are not at first marriage, (6) percentage of bride that are not at first marriage. The sample includes all marriages, including the first marriages and higher marriages. Dependent variable is a dummy that equals to 1 if unilateral divorce laws presents at the year of marriage and equals to 0 otherwise. Results in Panel A are for only white marriages, while Panel B are for all racial and ethnic groups. State- and year-fixed effects and linear state-specific time trends are controlled. States without fully observed divorce file from 1968-1995 are dropped in order to be consistent with previous results.

4.4 Heterogeneous Reactions to Unilateral Divorce Laws

As discussed, unilateral divorce laws have a strong impact on the risk of divorce through marital sorting. Marriages began under UDLs have higher risk of divorce than those formed before. There are different factors that can affect how marriage reacts to the unilateral divorce revolution. For instance, people from liberal states may have higher desire to marry and divorce, and thus unilateral divorce laws differentially affect marriage stability in these state than in less liberal states. The marriage characteristices of whites are more affected by UDLs than the overall marriages. Therefore, states with more white marriages may be affected by the unilateral divorce laws differently. In this section, the heterogeneous reactions of marriages from a variety of reform states are discussed.

I first use the DW-NOMINATE score to evaluate how conservative/liberal the state is.[14] DW-NOMINATE scores have been widely used to describe the political ideology of politicians, political parties, and political institutions. *Nominate* is a two-dimensional scaling application. The first dimension evaluates government intervention in the economy or the

[14]More information regarding DW-NOMINATE scores is available at `https://legacy.voteview.com/dwnomin.htm` and `https://en.wikipedia.org/wiki/NOMINATE_(scaling_method)`.

liberal-conservative spectrum of the modern era. The second dimension features the slavery conflict between Northern and Southern states prior to the Civil War as well as the Civil Rights debate from the late 1930s through the mid-1970s. After 1980 there is considerable evidence that the South realigns and the second dimension is no longer relevant. I use the average of the first dimension of the DW-NOMINATE scores of each state's U.S. senators to calculate the DW-score of the state. States with a score in the first dimension closer to 1 are described as conservative, whereas a score closer to -1 are described as liberal. A score of zero or close to zero is described as politically moderate.

Table 6: Risks of Divorce and Conservativeness

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: Cumulative divorce rates					
Divorce Effect	-0.00229	-0.000731	-0.000244	0.00516	0.00578	0.00320	0.00471	0.00725	0.00121	0.00427
	(0.00247)	(0.00354)	(0.00353)	(0.00594)	(0.00857)	(0.00843)	(0.00799)	(0.00660)	(0.00731)	(0.00927)
Sorting Effect	0.00462**	0.00528*	0.00635	0.00876	0.0104*	0.0126*	0.0134**	0.0139**	0.0169**	0.0174**
	(0.00200)	(0.00297)	(0.00383)	(0.00521)	(0.00583)	(0.00613)	(0.00635)	(0.00626)	(0.00648)	(0.00672)
Divorce Effect ×DW-Score	0.00313	0.00207	0.00193	0.00320	0.000627	0.000856	0.00177	0.000773	0.00629	0.0181
	(0.00626)	(0.00620)	(0.00724)	(0.0134)	(0.0168)	(0.0176)	(0.0176)	(0.0178)	(0.0202)	(0.0214)
Sorting Effect × DW-Score	0.00310	0.00278	0.00445	0.00164	0.00286	0.00109	0.000444	0.00521	0.00936	0.00300
	(0.00582)	(0.00823)	(0.0105)	(0.0133)	(0.0136)	(0.0134)	(0.0126)	(0.0124)	(0.0141)	(0.0163)
DW-Score	-0.00960**	-0.0125***	-0.0154**	-0.0169*	-0.0169	-0.0160	-0.0156	-0.0163*	-0.0170**	-0.0181**
	(0.00386)	(0.00435)	(0.00609)	(0.00875)	(0.0101)	(0.0103)	(0.00919)	(0.00801)	(0.00734)	(0.00837)
					Panel B: Hazard divorce rates					
Divorce Effect	-0.00155	-0.000554	0.000478	0.000806	-0.0000138	0.000939	-0.000539	0.00165	0.00236	0.000681
	(0.00180)	(0.00200)	(0.00139)	(0.00264)	(0.00253)	(0.00207)	(0.00206)	(0.00139)	(0.00170)	(0.00114)
Sorting Effect	0.00271*	0.00218	0.00168	0.00264	0.00127	0.00137	-0.0000951	-0.000165	0.000526	0.000990
	(0.00156)	(0.00205)	(0.00201)	(0.00207)	(0.00163)	(0.00152)	(0.00163)	(0.00136)	(0.00131)	(0.000999)
Divorce Effect ×DW-Score	-0.00204	-0.00562	-0.00228	-0.000920	-0.00385	-0.00240	-0.00393	-0.00522	0.00451	-0.00159
	(0.00456)	(0.00338)	(0.00359)	(0.00747)	(0.00493)	(0.00412)	(0.00415)	(0.00390)	(0.00465)	(0.00252)
Sorting Effect × DW-Score	0.00427	0.00466	0.00421	0.000143	0.00368	0.000341	0.000734	0.00525*	-0.000744	0.00246
	(0.00448)	(0.00466)	(0.00455)	(0.00564)	(0.00287)	(0.00203)	(0.00252)	(0.00290)	(0.00293)	(0.00238)
DW-Score	-0.00534**	-0.00451*	-0.00464	-0.00248	-0.00172	-0.000150	-0.000825	-0.00284	-0.00290	-0.00174
	(0.00251)	(0.00225)	(0.00345)	(0.00391)	(0.00256)	(0.00208)	(0.00175)	(0.00172)	(0.00246)	(0.00165)
Observations	727	700	673	646	619	592	565	538	511	484

Standard errors in parentheses, clustered by state.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Data source is the Divorce and Marriage file of Vital Statistics and DW-NOMINATE score of senator estimates. The outcome variable is cumulative risks of divorce in Panel A and hazard risks of divorce in Panel B. The interesting variables are divorce effect, sorting effect of unilateral divorce laws, and interactions with DW-Score. Each column represents a specific length of marriage. State- and cohort-year-fixed effects and linear state-specific time trends are controlled. The estimates are weighted by state population. If a marriage dissolves within a year, the divorce effect and sorting effect of the partially affected cohorts cannot be separated. Thus, divorce within a year is omitted. The third and forth row in each panel report the how divorce effect and sorting effect, respectively, affect states with different degree of conservative differently.

Table 6 reports how states react differently to unilateral divorce laws based on how

conservative they are. More conservative states have lower cumulative as well as hazard risks of divorce. However, there is little evidence that the reaction to unilateral divorce laws varies across states of different DW-scores. The coefficient estimates of the interaction terms in Table 6 show that marriages from more conservative states experience slightly higher cumulative risks of divorce than marriages from more liberal states, but the differences are not statistically different from zero. Similar results are found for the hazard risks of divorce, indicating that the effects of unilateral divorce laws on the risk of divorce are not driven by liberal states.

Next I examine the heterogeneous reactions of states with more white marriages to unilateral divorce laws. Farley and Bianchi (1987) finds that whites marry at younger ages than blacks, and black women are less likely than white women to remarry after a divorce. Sexual disparity in income is much smaller among blacks than among whites. Bulanda and Brown (2007) finds that black marriages have lower quality than other races and face higher odds of marital disruption. Raley et al. (2015) shows that black women marry later in life are less likely to marry, and have higher rates of martial instability. Other marriage and divorce patterns, such as employment and economic independence, have been discussed as well. The evidence from the previous studies indicates disparities in marriage quality and stability among different racial and ethnic groups. Hence, it is reasonable to postulate heterogeneous responses among different racial groups when switching to unilateral divorce laws. Due to the data limitation, I perform the empirical analysis based on the percentage of white marriages of each marriage cohort in each state and interact the percentage of white marriages with the effects of unilateral divorce laws on the risks of divorce.

An analysis of how states with more white couples are affected by unilateral divorce laws differently from states with less white couples is presented in Table 7.[15] The *white share* is

[15]The analysis of other racial and ethnic groups, such as black and Hispanic couples, cannot be conducted due to data limitations. The Marriage Data of Vital Statistics does not provide sufficient data on Hispanic

Table 7: Risk of Divorce Among White Couples

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: Cumulative divorce rates					
Divorce Effect	0.0353***	0.0446***	0.0347*	0.0203	0.0262	0.0267	0.0293	0.0292	0.0133	0.000482
	(0.0105)	(0.0106)	(0.0179)	(0.0331)	(0.0548)	(0.0578)	(0.0602)	(0.0645)	(0.0687)	(0.0720)
Sorting Effect	-0.00351	-0.00382	0.00719	0.0107	0.00536	0.0102	0.00662	0.0107	0.0110	0.0169
	(0.0121)	(0.0159)	(0.0246)	(0.0349)	(0.0468)	(0.0499)	(0.0551)	(0.0590)	(0.0646)	(0.0664)
Divorce Effect × White Share	-0.0369***	-0.0450***	-0.0328	-0.0142	-0.0207	-0.0161	-0.0210	-0.0168	-0.00249	0.0156
	(0.0116)	(0.0120)	(0.0208)	(0.0359)	(0.0563)	(0.0578)	(0.0609)	(0.0657)	(0.0711)	(0.0737)
Sorting Effect × White Share	0.0113	0.0149	0.00508	0.00412	0.0118	0.00978	0.0137	0.00937	0.0105	0.00324
	(0.0131)	(0.0182)	(0.0285)	(0.0399)	(0.0528)	(0.0559)	(0.0617)	(0.0661)	(0.0725)	(0.0743)
White Share	0.0106	0.0116	0.00337	-0.0108	-0.0165	-0.0220	-0.0254	-0.0241	-0.0315	-0.0325
	(0.00877)	(0.0116)	(0.0133)	(0.0162)	(0.0180)	(0.0198)	(0.0203)	(0.0207)	(0.0199)	(0.0201)
					Panel B: Hazard divorce rates					
Divorce Effect	0.0313***	0.0214**	0.0114	0.00825	0.0157	0.0227	0.0366*	0.0114	0.0200	0.0119
	(0.00629)	(0.0102)	(0.0143)	(0.0134)	(0.0181)	(0.0141)	(0.0209)	(0.0119)	(0.0139)	(0.0112)
Sorting Effect	-0.0150*	-0.0148	-0.00638	-0.0112	-0.00855	-0.00501	-0.0198	-0.00586	-0.0130	-0.000814
	(0.00830)	(0.0161)	(0.0146)	(0.0144)	(0.0144)	(0.0116)	(0.0173)	(0.0104)	(0.0138)	(0.00948)
Divorce Effect × White Share	-0.0323***	-0.0203	-0.0103	-0.00660	-0.0156	-0.0198	-0.0390*	-0.00837	-0.0209	-0.0101
	(0.00712)	(0.0119)	(0.0161)	(0.0151)	(0.0183)	(0.0141)	(0.0216)	(0.0122)	(0.0143)	(0.0116)
Sorting Effect × White Share	0.0198*	0.0191	0.00935	0.0160	0.0115	0.00933	0.0230	0.00768	0.0160	0.00320
	(0.00983)	(0.0185)	(0.0172)	(0.0171)	(0.0162)	(0.0130)	(0.0194)	(0.0116)	(0.0154)	(0.0105)
White Share	0.00557	0.00198	-0.00818	-0.0109*	-0.00327	-0.0000611	-0.00273	-0.00324	-0.00183	0.00345
	(0.00563)	(0.00608)	(0.00478)	(0.00528)	(0.00461)	(0.00337)	(0.00262)	(0.00274)	(0.00358)	(0.00307)
Observations	604	583	561	539	517	495	473	451	429	407

Standard errors in parentheses, clustered by state.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: Data source is the Divorce and Marriage file of Vital Statistics. The outcome variable is cumulative risks of divorce in Panel A and hazard risks of divorce in Panel B. The interesting variables are divorce effect, sorting effect of unilateral divorce laws, and the interactions with the share of white couples in each marriage cohort. Each column represents a specific length of marriage. State- and year-fixed effects and linear state-specific time trends are controlled. The estimates are weighted by state population. If a marriage dissolves within a year, the divorce effect and sorting effect of the partially affected cohorts cannot be separated. Thus, divorce within a year is omitted. The third and forth row in each panel report the how divorce effect and sorting effect, respectively, affect states with different share of white couples differently. The reason for using percentage of white couples in each marital cohort is that the share of black marriage in some states are extremely low and tends to be under-reported; there is no information of race for other non-white-non-black racial and ethnic groups.

defined as the percentage of marriages in which both spouses are whites in each marriage cohort. States with more white couples have slightly lower cumulative and hazard risks of divorce than those with smaller proportions of white couples, though the difference is not statistically significant. Cohorts with more white couples are less responsive to the divorce effect of UDLs during the first couple years of marriage. The difference in response to the divorce effect between states with more white couples and those with less shrinks during the later years of marriage for both cumulative and hazard risks of divorce. States with more white couples are more responsive to the sorting effect, though not statistically significant. The sorting effects on states with less white couples are close to zero. However, the joint test on the overall sorting effects on states with more whites couples are positive and significantly different from zero. For instance, the sorting effect increases the cumulative risk of divorce of states with more white couples by 1.5 percentage points within 5 years, with a 10 percent significance level.

4.5 Robustness

In this section, several specifications are applied as robustness checks on the main results. The first concern is the inclusion of linear state-specific time trends in a DD approach. Wolfers (2006) mentioned the sensitivity of the estimates of Friedberg (1998) to state-specific trends. Friedberg (1998) found large and significant effects of unilateral divorce laws on divorce rates only with the inclusion of state-specific linear time trends.[16] Since this study employs the same DD estimations, and the main specification also includes linear state-specific time trends, Table 10 - 13 in Appendix A.2 provides robustness checks for the main results with different specifications of state-specific time trend.

Without assuming any state-specific trend, divorce effects on cumulative risks of divorce

marriages, and black marriages were underreported in the 1960s and 1970s.

[16]The coefficient estimates are similar when state-specific quadratic time trends are included in Friedberg (1998).

ranged from zero to slightly negative, implying that the partially affected cohorts do not have a higher risk of divorce than the non-affected cohorts. In fact, the cumulative risk of divorce is lower for partially affected cohorts than non-affected cohorts when a marriage lasts longer. Sorting effects, on the other hand, are positive and significantly affect the risk of divorce within 6 years or less. So fully affected cohorts are more likely than partially affected marriage cohorts to divorce within the first 6 years of marriage. However, given that divorce effects and sorting effects cancel out each other, the cumulative risk of divorce of fully affected cohorts is not higher than the non-affected cohorts. Divorce effects and sorting effects on hazard divorce rates exhibit similar patterns as for the cumulative risk of divorce. Divorce effects reduce hazard divorce rates, meaning that partially affected marriages have lower hazard risk of divorce than non-affected marriages. Positive sorting effects suggest that fully affected cohorts face higher hazard divorce rates than the partially affected during early years of marriage. These are consistent with the main results discussed in previous sections.

The next robustness check allows for state-specific quadratic time trends to the main specifications. These results are reported in Appendix A.2 Table 12 for cumulative divorce rates and Table 13 for hazard divorce rates. The patterns of divorce and sorting effects with additional quadratic state-specific time trends are very similar to estimates with linear state-specific time trends, but with slightly different magnitude. Results with different specifications for the state-specific time trends show that the main results are robust based on different assumptions of state-specific trends. In fact, no state-specific trend is intrinsically problematic since the omitted unobserved variables vary within a state and may bias the estimation, whereas a state-specific quadratic time trend is often too strong of an assumption. For example, within a state, people may have different attitudes and tastes toward marriage and divorce that change over the time and are affected by legal reforms. These unobserved characteristics could correlate with the risk of divorce linearly or otherwise.

The second concern stems from the structure of the sample. Since the Divorce file and Marriage file of Vital Statistics are available only from 1968-1995, the youngest ten marriage cohorts cannot be fully observed for the first 10 years of marriage. For instance, marriage cohort of 1990 only has a marriage history of the first 5 years, while cohort 1995 only has a marriage history of the first 12 months. Hence, the number of cohorts declines when the length of marriages examined increases. To show the results are not driven by changing samples, I apply the main specification of a DD approach to a restricted sample – cohort 1968 to cohort 1985 – so that the full history of the first 10 years of each marriage cohorts in the estimation are recorded. Table 14 and 15 show that the divorce and sorting affects of unilateral divorce laws on the restricted sample are very similar to the main results, which confirms the robustness of the main results based on a larger, unbalanced panel data.

The third test is conducted to check the robustness of the effects of unilateral divorce laws on the risks of divorce unweighted by state population. Following the method of (Wolfers, 2006), the main results are weighted by the state annual population. The main concern here is that the results are driven by large states, such as California, with large populations. If unilateral divorce laws have the same impact on marriages from different states, the regression estimates from the main specification should be robust in the absence of weighted state population. Table 16 and 17 report the effects of unilateral divorce laws on cohort risks of divorce, without weighted by state population. As expected, the effects on treated cohorts are consistent with previous findings.

Another concern regarding the robustness of the main results is that the partially affected cohorts of marriage from different years are affected differently by the unilateral divorce laws. For example, the 1973 and 1975 marriage cohorts that divorce in their 5th years are both partially affected in Wisconsin, where unilateral divorce laws were enacted in 1977 (Voena, 2015). However, the 1975 couples were affected by the law for 3 years in the marriage at the

time of divorce, and it is only 1 year for the 1973 cohort. The length of marriage affected by the laws may affect marriage stability differently. The effect of years being exposed to unilateral divorce laws in marriage on the risks of divorce of partially treated cohorts are presented in Table 18. Partially affected cohorts that are exposed to UDLs with more years in marriage have higher cumulative risks of divorce than those with fewer years. The same approach is applied to hazard divorce rates. The divorce effect on the hazard risks of divorce are not altered by omitting the years of being exposed.

5 Conclusion

This study attempts to identify how unilateral divorce laws affect the risk of divorce through two different mechanisms. Previous studies examined a similar question about the effect of unilateral divorce laws on the crude divorce rates. Some found positive effects, and others found zero impact on the likelihood of divorce. Unilateral divorce laws reduce the cost of divorce in the short term; more importantly, the lower cost of divorce may affect the composition of marriages in the long term. Crude divorce rates treat couples married under different legal regimes the same, and thus ignore heterogeneous mechanisms.

I find that switching to unilateral divorce law induced higher risks of divorce among marriages formed after unilateral divorce laws - the fully affected cohorts. The risk of divorce for fully affected cohorts in the first 11 years of marriage is 1.68 percentage points higher than those for non-affected couples. Unilateral divorce laws also allow faster divorce among newlyweds. Once the marriage is undesired by one spouse, it can be dissolved immediately. There is no strong evidence that marriages existing at the time the law is enacted are more likely than unaffected cohorts to dissolve. In addition, evidence shows that fully affected cohorts have a higher risk of divorce than partially affected cohorts. Fully treated couples are

affected by unilateral divorce laws differently than partially affected couples in the selection of marriage. I find that changes in self-selection into marriage is the major cause of increase in the risk of divorce. Thus, by examining the effects of unilateral divorce laws on the cohort risk of divorce, this paper is consistent with previous findings that unilateral divorce laws induce more divorces. In addition, this paper provides evidence that the rise in the risk of divorce is mainly attributable to high marital disruption among new marriages. In the long term, when all non-affected and partially affected cohorts are eventually washed out, the crude divorce rates examined in the previous studies will be attributed to the marriages formed under the unilateral divorce era. Unilateral divorce laws have a profound impact on the family structures in the long run.

Although this study makes important contributions to the understanding of how unilateral divorce laws affect marriages, it also has several limitations. For example, suitable data on only 27 states were available. Future research should confirm and expand upon this study with larger data samples. Another limitation of this paper is that it does not answer directly how unilateral divorce laws affect who seeks marriage and who marries whom. In order to correctly evaluate the effect of unilateral divorce laws in the long term, it is imperative to understand how the legal reform changes marriage sorting in the first place.

Despite its limitations, this study contributes to the growing evidence of our understanding of changes in the family structure caused by unilateral divorce laws. This empirical analysis provides a novel perspective that has been neglected in previous studies: the impact of unilateral divorce laws on the risks of divorce through marital sorting. In addition to eliminating unhealthy marriages, policy makers should also consider how to encourage healthy marriages. Future studies of UDLs, and divorce laws in general, must take into account the impact on family structure in evaluating their welfare effects.

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A Appendix

A.1 Data Appendix

Table 8: State Information: Unilateral Divorce Laws

	Wolfers (2006)	Gruber (2004)	Friedberg (1998)	Voena (2015)
Alabama*	1971	1971	1971	1971
Alaska*	1935	1935	no	pre-1967
Arizona	1973	1973	1973	1973
Arkansas	no	no	no	no
California*†	1970	1970	1970	1970
Colorado	19671	1972	1971	1972
Connecticut*	1973	1973	1973	1973
Delaware*†	no	1968	no	1968
District of Columnbia*†	no	no	no	no
Florida	1971	1971	1971	1971
Georgia*	1973	1973	1973	1973
Hawaii*	1973	1972	1973	1972
Idaho*	1971	1971	1971	1971
Illinois*	no	no	no	no
Indiana	1973	1973	1973	1973
Iowa*	1970	1970	1970	1970
Kansas*	1969	1969	1969	1969
Kentucky*	1972	1972	1972	1972
Louisiana	no	no	no	no
Maine	1973	1973	1973	1973
Maryland*	no	no	no	no
Massachusetts*†	1975	1975	1975	1975
Michigan*	1972	972	1972	1972
Minnesota	1974	1974	1974	1974
Mississippi	no	no	no	no
Missouri*	no	no	no	no
Montana*	1975	1973	1975	1973
Nebraska*	1972	1972	1972	1972
Nevada	1973	1967	1973	1967

* are states from the data sample.

† are states with missing years that were dropped from empirical analysis.

Table 9: State Information, Continued

	Wolfers (2006)	Gruber (2004)	Friedberg (1998)	Voena (2015)
New Hampshire*†	1971	1971	1971	1971
New Jersey*	no	no	no	no
New Mexico	1973	1933	1973	1973
New York	no	no	no	no
North Carolina	no	no	no	no
North Dakota	1971	1971	1971	1971
Ohio*	no	no	no	1992
Oklahoma	1953	1953	no	pre-1967
Oregon*	1973	1971	1973	1971
Pennsylvania*	no	no	no	no
Rhode Island*	1976	1975	1976	1975
South Carolina*†	no	no	no	no
South Dakota*	1985	1985	1985	1985
Tennessee*	no	no	no	no
Texas	1974	1970	1974	1970
Utah*	no	1987		1987
Vermont*	no	no	no	no
Virginia*	no	no	no	no
Washington	1973	1973	1973	1973
West Virginia	no	no	no	1984
Wisconsin*	no	1978	no	1978
Wyoming*	1977	1977	1977	1977

* are states from the data sample.

† are states with missing years that were dropped from the empirical analysis.

A.2 Robustness Check

Table 10: Cumulative Risks of Divorce: Non State-Specific Trends

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: by types of effects					
Divorce Effect	-0.00439	-0.00487	-0.00725	-0.00929	-0.0127	-0.0162	-0.0168*	-0.0176	-0.0234*	-0.0248**
	(0.00423)	(0.00558)	(0.00770)	(0.00807)	(0.00823)	(0.00986)	(0.00923)	(0.0107)	(0.0122)	(0.0117)
Sorting Effect	0.00683***	0.00993***	0.0129***	0.0163**	0.0159**	0.0143*	0.0121	0.0111	0.00967	0.00904
	(0.00231)	(0.00326)	(0.00464)	(0.00637)	(0.00692)	(0.00754)	(0.00807)	(0.00880)	(0.00948)	(0.00981)
					Panel B: by treated group					
Partially Treated	-0.00439	-0.00487	-0.00725	-0.00929	-0.0127	-0.0162	-0.0168*	-0.0176	-0.0234*	-0.0248**
	(0.00423)	(0.00558)	(0.00770)	(0.00807)	(0.00823)	(0.00986)	(0.00923)	(0.0107)	(0.0122)	(0.0117)
Fully Treated	0.00244	0.00506	0.00570	0.00703	0.00323	-0.00184	-0.00471	-0.00644	-0.0137	-0.0158
	(0.00380)	(0.00487)	(0.00595)	(0.00552)	(0.00585)	(0.00792)	(0.00904)	(0.0116)	(0.0143)	(0.0154)
Observations	727	700	673	646	619	592	565	538	511	484

State, cohort fixed effect are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Hazard Risks of Divorce: Non State-Specific Trends

Divorce at	(1) 2nd yr	(2) 3rd yr	(3) 4th yr	(4) 5th yr	(5) 6th yr	(6) 7th yr	(7) 8th yr	(8) 9th yr	(9) 10th yr	(10) 11th yr
					Panel A: by types of effects					
Divorce Effect	-0.00260	-0.00190	-0.00199	-0.00436	-0.00350	-0.00226	-0.00216*	-0.00165	-0.00266**	-0.00186
	(0.00300)	(0.00269)	(0.00271)	(0.00262)	(0.00247)	(0.00188)	(0.00126)	(0.00179)	(0.00117)	(0.00117)
Sorting Effect	0.00416**	0.00394**	0.00302	0.00387*	0.00207	0.000531	-0.000595	-0.0000592	0.0000555	0.000445
	(0.00156)	(0.00170)	(0.00200)	(0.00216)	(0.00181)	(0.00147)	(0.00132)	(0.00156)	(0.00142)	(0.00123)
					Panel B: by treated group					
Partially Treated	-0.00260	-0.00190	-0.00199	-0.00436	-0.00350	-0.00226	-0.00216*	-0.00165	-0.00266**	-0.00186
	(0.00300)	(0.00269)	(0.00271)	(0.00262)	(0.00247)	(0.00188)	(0.00126)	(0.00179)	(0.00117)	(0.00117)
Fully Treated	0.00156	0.00204	0.00103	-0.000488	-0.00143	-0.00173	-0.00275*	-0.00171	-0.00260*	-0.00141
	(0.00243)	(0.00188)	(0.00188)	(0.00159)	(0.00188)	(0.00166)	(0.00153)	(0.00191)	(0.00148)	(0.00129)
Observations	727	700	673	646	619	592	565	538	511	484

State, cohort fixed effect are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Cumulative Risks of Divorce: Linear and Quadratic State-Specific Trends

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: by types of effects					
Divorce Effect	0.00146	0.00440	0.00643	0.0156***	0.0180**	0.00743	0.00525	0.00907**	-0.00715	-0.00950
	(0.00241)	(0.00422)	(0.00420)	(0.00495)	(0.00778)	(0.00762)	(0.00571)	(0.00349)	(0.00533)	(0.0116)
Sorting Effect	0.00711***	0.0113***	0.0156***	0.0222***	0.0241***	0.0222**	0.0185**	0.0155*	0.0120	0.0104
	(0.00136)	(0.00272)	(0.00522)	(0.00771)	(0.00862)	(0.00904)	(0.00869)	(0.00797)	(0.00750)	(0.00659)
					Panel B: by treated group					
Partially Treated	0.00146	0.00440	0.00643	0.0156***	0.0180**	0.00743	0.00525	0.00907**	-0.00715	-0.00950
	(0.00241)	(0.00422)	(0.00420)	(0.00495)	(0.00778)	(0.00762)	(0.00571)	(0.00349)	(0.00533)	(0.0116)
Fully Treated	0.00857***	0.0157***	0.0220***	0.0377***	0.0421***	0.0296**	0.0238*	0.0246**	0.00481	0.000884
	(0.00253)	(0.00437)	(0.00541)	(0.0103)	(0.0134)	(0.0136)	(0.0126)	(0.00989)	(0.00853)	(0.0124)
Observations	727	700	673	646	619	592	565	538	511	484

State, cohort fixed effect, and linear and quadratic state-specific time trend are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Hazard Risks of Divorce: Linear and Quadratic State-Specific Trends

Divorce at	(1) 2nd yr	(2) 3rd yr	(3) 4th yr	(4) 5th yr	(5) 6th yr	(6) 7th yr	(7) 8th yr	(8) 9th yr	(9) 10th yr	(10) 11th yr
					Panel A: by types of effects					
Divorce Effect	0.00118	0.00157	0.00121	0.00171	0.000213	-0.000819	-0.000568	0.00175*	-0.00203	-0.000930
	(0.00195)	(0.00216)	(0.00152)	(0.00218)	(0.00206)	(0.00123)	(0.00131)	(0.000927)	(0.00124)	(0.00123)
Sorting Effect	0.00387***	0.00422*	0.00359	0.00455*	0.00298	0.00196	-0.000686	-0.00118	0.000327	-0.000135
	(0.00116)	(0.00216)	(0.00306)	(0.00228)	(0.00182)	(0.00159)	(0.00184)	(0.00107)	(0.00142)	(0.00120)
					Panel B: by treated group					
Partially Treated	0.00118	0.00157	0.00121	0.00171	0.000213	-0.000819	-0.000568	0.00175*	-0.00203	-0.000930
	(0.00195)	(0.00216)	(0.00152)	(0.00218)	(0.00206)	(0.00123)	(0.00131)	(0.000927)	(0.00124)	(0.00123)
Fully Treated	0.00505***	0.00578***	0.00481	0.00626**	0.00319	0.00114	-0.00125	0.000570	-0.00171	-0.00106
	(0.00156)	(0.00177)	(0.00330)	(0.00280)	(0.00241)	(0.00211)	(0.00271)	(0.00157)	(0.00166)	(0.00169)
Observations	727	700	673	646	619	592	565	538	511	484

State, cohort fixed effect, and linear and quadratic state-specific time trend are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Cumulative Risks of Divorce: Cohort 1968-1985

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: by types of effects					
Divorce Effect	0.00132	0.00245	0.00460	0.0132*	0.0126	0.0139	0.00818	0.00931**	-0.000188	-0.00208
	(0.00348)	(0.00520)	(0.00607)	(0.00659)	(0.0111)	(0.0111)	(0.00542)	(0.00407)	(0.00502)	(0.00563)
Sorting Effect	0.00844***	0.0136***	0.0177***	0.0212***	0.0227***	0.0230***	0.0212***	0.0194***	0.0189**	0.0188**
	(0.00178)	(0.00295)	(0.00431)	(0.00503)	(0.00525)	(0.00557)	(0.00615)	(0.00631)	(0.00684)	(0.00709)
					Panel B: by treated group					
Partially Treated	0.00132	0.00245	0.00460	0.0132*	0.0126	0.0139	0.00818	0.00931**	-0.000188	-0.00208
	(0.00348)	(0.00520)	(0.00607)	(0.00659)	(0.0111)	(0.0111)	(0.00542)	(0.00407)	(0.00502)	(0.00563)
Fully Treated	0.00976**	0.0160***	0.0223***	0.0344***	0.0353***	0.0369***	0.0294***	0.0287***	0.0187***	0.0168**
	(0.00383)	(0.00570)	(0.00614)	(0.00801)	(0.0121)	(0.0129)	(0.00790)	(0.00667)	(0.00632)	(0.00728)
Observations	484	484	484	484	484	484	484	484	484	484

State, cohort fixed effect, and state-specific time trend are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

Sample is restricted to 1968-1985

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: Hazard Risks of Divorce: Cohort 1968-1985

Divorce at	(1) 2nd yr	(2) 3rd yr	(3) 4th yr	(4) 5th yr	(5) 6th yr	(6) 7th yr	(7) 8th yr	(8) 9th yr	(9) 10th yr	(10) 11th yr
					Panel A: by types of effects					
Divorce Effect	0.00131	0.00140	0.00194	0.00312	0.00123	0.00220	0.00203	0.00288***	0.00129	0.00122*
	(0.00268)	(0.00300)	(0.00195)	(0.00307)	(0.00390)	(0.00245)	(0.00205)	(0.000824)	(0.000832)	(0.000698)
Sorting Effect	0.00477***	0.00560**	0.00518**	0.00477**	0.00291*	0.00196	0.000330	-0.000805	0.000834	0.000953
	(0.00143)	(0.00241)	(0.00250)	(0.00215)	(0.00168)	(0.00169)	(0.00186)	(0.00141)	(0.00148)	(0.00105)
					Panel B: by treated group					
Partially Treated	0.00131	0.00140	0.00194	0.00312	0.00123	0.00220	0.00203	0.00288***	0.00129	0.00122*
	(0.00268)	(0.00300)	(0.00195)	(0.00307)	(0.00390)	(0.00245)	(0.00205)	(0.000824)	(0.000832)	(0.000698)
Fully Treated	0.00609**	0.00701**	0.00712***	0.00788**	0.00415	0.00415	0.00236	0.00207	0.00212	0.00217**
	(0.00221)	(0.00259)	(0.00167)	(0.00347)	(0.00436)	(0.00336)	(0.00324)	(0.00186)	(0.00171)	(0.000868)
Observations	484	484	484	484	484	484	484	484	484	484

State, cohort fixed effect, and state-specific time trend are controlled

Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

Sample is restricted to 1968-1985

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16: Cumulative Risks of Divorce: Non-Weighted by State Population

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: by types of effects					
Divorce Effect	0.000484	0.00217	0.00195	0.00511	0.00332	0.00623	0.00771	0.0115*	0.00517**	0.00603
	(0.00252)	(0.00310)	(0.00327)	(0.00424)	(0.00597)	(0.00796)	(0.00734)	(0.00586)	(0.00248)	(0.0111)
Sorting Effect	0.00420**	0.00697**	0.0101***	0.0127***	0.0141***	0.0165***	0.0169***	0.0174***	0.0202***	0.0214***
	(0.00195)	(0.00265)	(0.00356)	(0.00433)	(0.00504)	(0.00551)	(0.00566)	(0.00560)	(0.00584)	(0.00624)
					Panel B: by treated group					
Partially Treated	0.000484	0.00217	0.00195	0.00511	0.00332	0.00623	0.00771	0.0115*	0.00517**	0.00603
	(0.00252)	(0.00310)	(0.00327)	(0.00424)	(0.00597)	(0.00796)	(0.00734)	(0.00586)	(0.00248)	(0.0111)
Fully Treated	0.00469	0.00914*	0.0120**	0.0178**	0.0174*	0.0227*	0.0246**	0.0289***	0.0254***	0.0274**
	(0.00308)	(0.00459)	(0.00552)	(0.00705)	(0.00950)	(0.0120)	(0.0117)	(0.0102)	(0.00649)	(0.0119)
Observations	729	702	675	648	621	594	567	540	513	486

State, cohort fixed effect, and state-specific time trend are controlled
Standard errors in parentheses, cluster by state
States with missing year obs are dropped
Non-weighted by state population
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: Hazard Risks of Divorce: Non-Weighted by State Population

Divorce at	(1) 2nd yr	(2) 3rd yr	(3) 4th yr	(4) 5th yr	(5) 6th yr	(6) 7th yr	(7) 8th yr	(8) 9th yr	(9) 10th yr	(10) 11th yr
					Panel A: by types of effects					
Divorce Effect	0.000871	0.00176	0.00147	0.00221	0.000285	0.00286	0.00245	0.00293*	0.000463	0.00148***
	(0.00178)	(0.00155)	(0.00132)	(0.00166)	(0.00225)	(0.00223)	(0.00343)	(0.00152)	(0.000825)	(0.000408)
Sorting Effect	0.00238	0.00284*	0.00277*	0.00240	0.00138	0.00244**	0.000794	0.000162	0.00191	0.00249**
	(0.00148)	(0.00161)	(0.00146)	(0.00162)	(0.00148)	(0.00117)	(0.00150)	(0.00113)	(0.00135)	(0.000951)
					Panel B: by treated group					
Partially Treated	0.000871	0.00176	0.00147	0.00221	0.000285	0.00286	0.00245	0.00293*	0.000463	0.00148***
	(0.00178)	(0.00155)	(0.00132)	(0.00166)	(0.00225)	(0.00223)	(0.00343)	(0.00152)	(0.000825)	(0.000408)
Fully Treated	0.00325	0.00460**	0.00424**	0.00461**	0.00167	0.00530*	0.00325	0.00310	0.00237	0.00397***
	(0.00193)	(0.00219)	(0.00154)	(0.00215)	(0.00342)	(0.00292)	(0.00355)	(0.00200)	(0.00166)	(0.000983)
Observations	729	702	675	648	621	594	567	540	513	486

State, cohort fixed effect, and state-specific time trend are controlled
Standard errors in parentheses, cluster by state
States with missing year obs are dropped
Non-weighted by state population
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 18: Partially Affected Cohorts with Different Exposure Times under UDL

Divorce within	(1) 2yrs	(2) 3yrs	(3) 4yrs	(4) 5yrs	(5) 6yrs	(6) 7yrs	(7) 8yrs	(8) 9yrs	(9) 10yrs	(10) 11yrs
					Panel A: Cumulative Risks of Divorce					
Divoce Effect	-0.00291	-0.000204	-0.00176	0.00368	0.00218	-0.00228	-0.000969	0.00323	-0.00609	-0.00737
	(0.00268)	(0.00223)	(0.00307)	(0.00418)	(0.00533)	(0.00533)	(0.00428)	(0.00312)	(0.00590)	(0.00844)
Sorting Effect	0.00458**	0.00417	0.00737	0.0100	0.0165**	0.0254***	0.0306***	0.0307**	0.0442***	0.0542***
	(0.00183)	(0.00361)	(0.00507)	(0.00675)	(0.00770)	(0.00864)	(0.00990)	(0.0119)	(0.0148)	(0.0193)
Partially × Exposure Time		-0.00299	0.000302	-0.0000951	0.00173	0.00303**	0.00322**	0.00258	0.00366*	0.00422*
		(0.00330)	(0.00240)	(0.00194)	(0.00153)	(0.00136)	(0.00142)	(0.00157)	(0.00182)	(0.00215)
					Panel B: Hazard Risks of Divorce					
Divorce Effect	-0.00136	0.000724	-0.000319	-0.00000381	0.000920	0.00109	0.000771	0.00360***	0.000623	0.00126
	(0.00193)	(0.00165)	(0.00159)	(0.00174)	(0.00168)	(0.00116)	(0.00156)	(0.000754)	(0.000904)	(0.000868)
Sorting Effect	0.00239*	0.00134	0.00273	0.00417	0.00169	0.00312	0.000599	-0.000255	0.000880	0.000691
	(0.00134)	(0.00199)	(0.00255)	(0.00291)	(0.00230)	(0.00201)	(0.00214)	(0.00201)	(0.00269)	(0.00246)
Partially × Exposure Time		-0.00125	0.00102	0.000714	0.000177	0.000465	0.000136	0.00000168	-0.000000592	-0.0000313
		(0.00132)	(0.000684)	(0.000769)	(0.000499)	(0.000375)	(0.000358)	(0.000163)	(0.000292)	(0.000259)
Observations	727	700	673	646	619	592	565	538	511	484

State, cohort fixed effect, and state-specific time trend are controlled

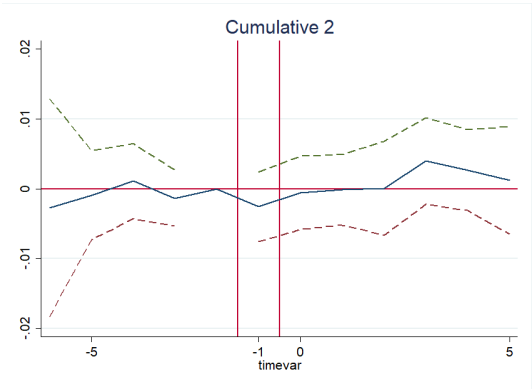
Standard errors in parentheses, cluster by state, weighted by state population

States with missing year obs are dropped

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: *Exposure Time* is measured as years of marriage being affected by unilateral divorce laws. Partially affected cohorts that married in different year, with the same length of marriage, are exposed to unilateral divorce laws with different lengths. The interaction term in Panel A and Panel B captures how unilateral divorce laws affect partially affected cohorts with longer exposure time differently from those with shorter.

A.3 Pre-trend Tests by Marriage Duration



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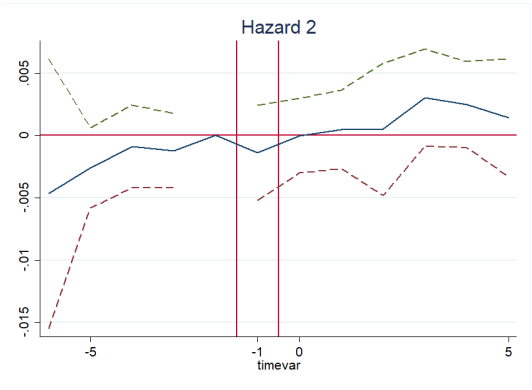
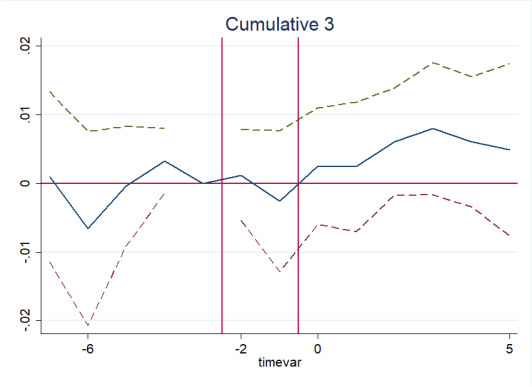


(b)



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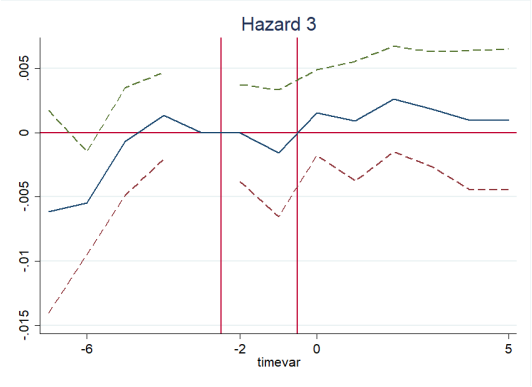

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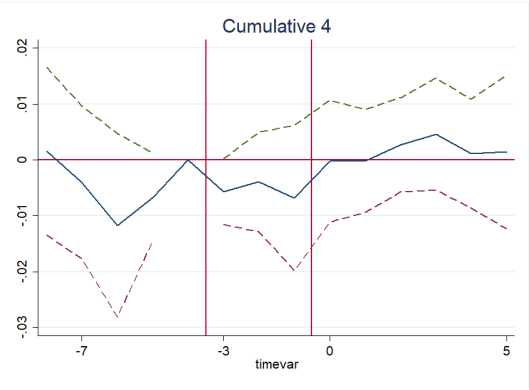
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0
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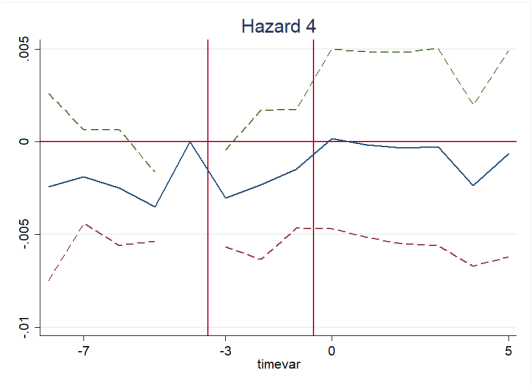
timevar

(e)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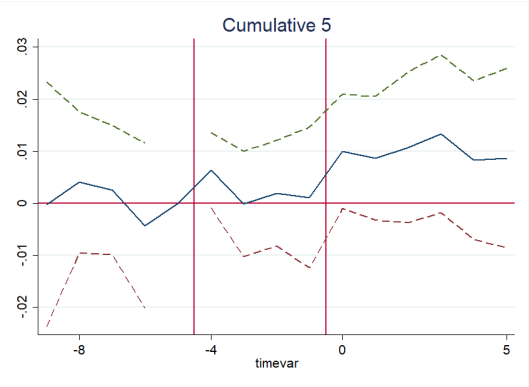
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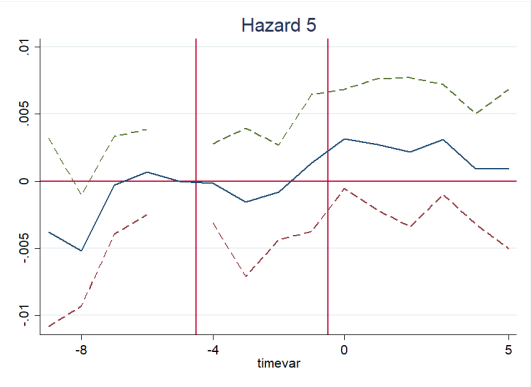
0
5
timevar

(g)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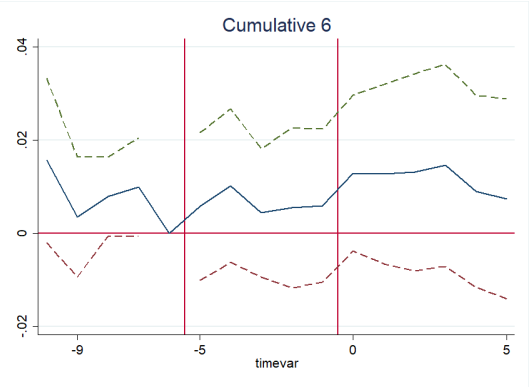
0
5
timevar

(h)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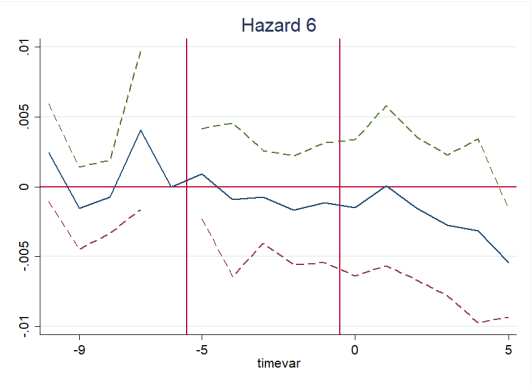
0
5
timevar

(i)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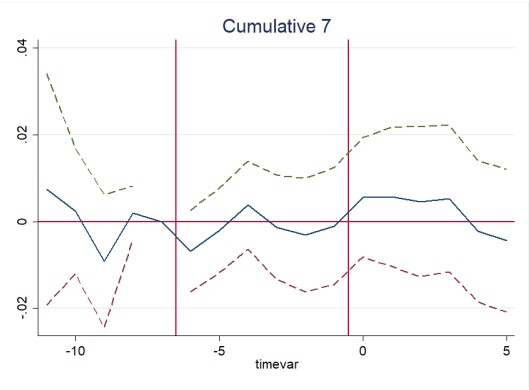
5
timevar

(j)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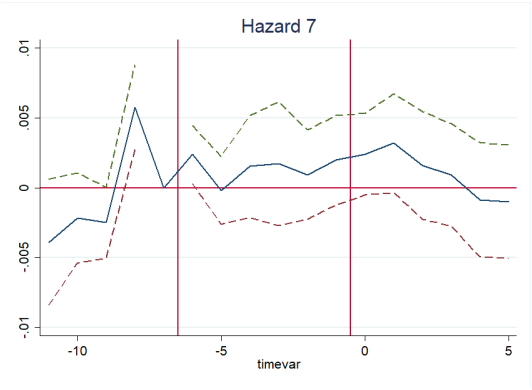
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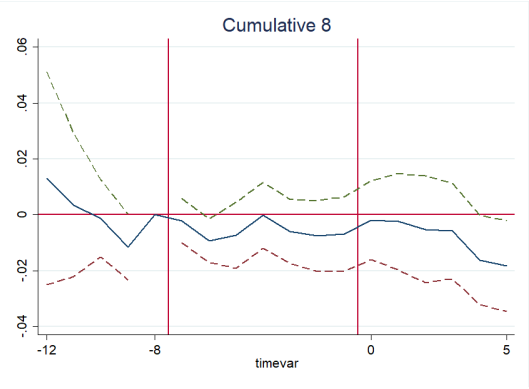
(l)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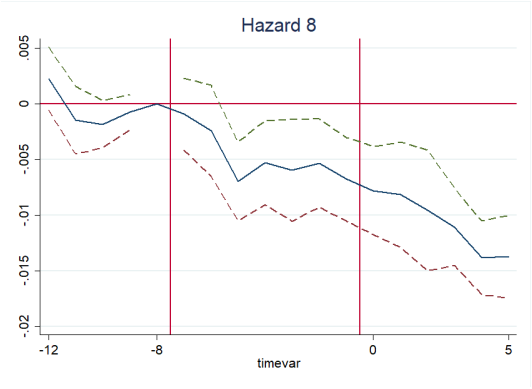
timevar

(m)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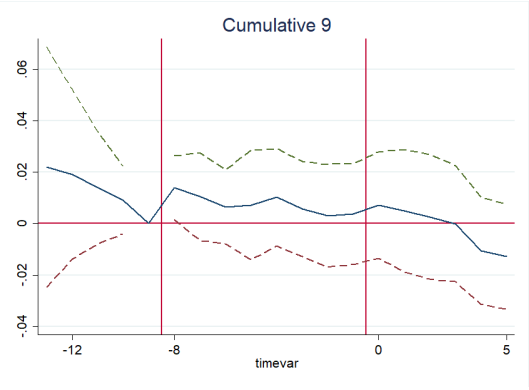
0
5
timevar

(n)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0
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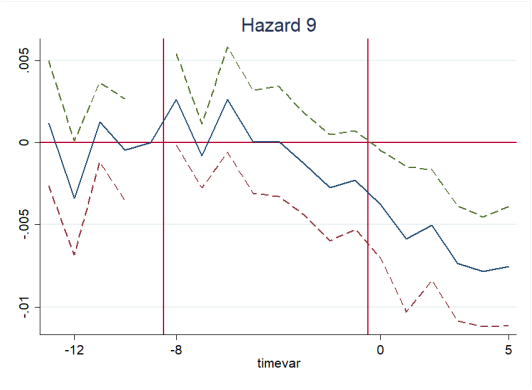
timevar

(o)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0
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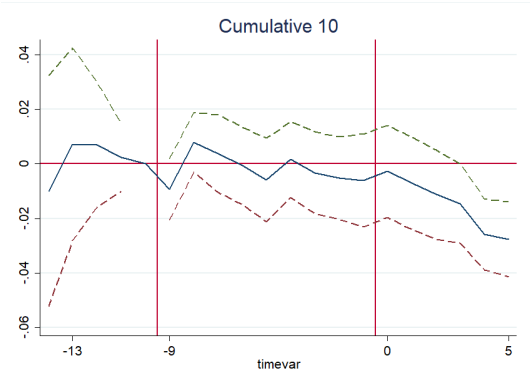
timevar

(p)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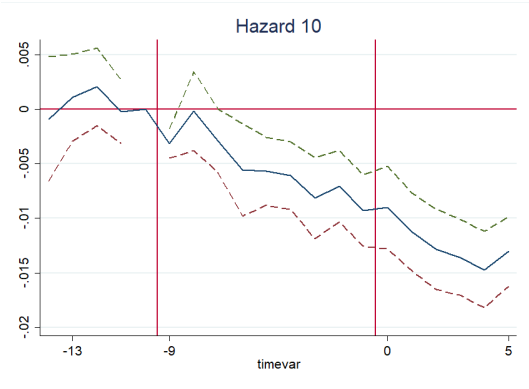
0
5
timevar

(q)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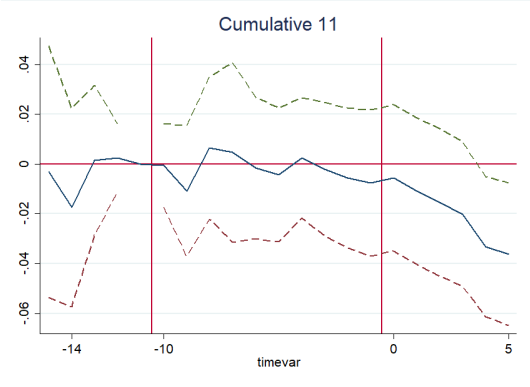
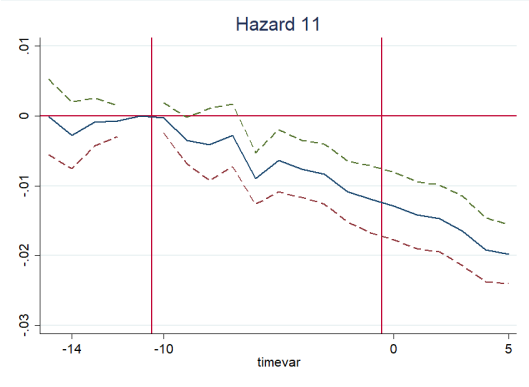
-.015
-.02
-13
-9
0
5
timevar

(r)


Cumulative 11
.04
.02
0
-.02
-.04
-.06
-14
-10
0
5
timevar

(s)


Hazard 11
.01
0
-.01
-.02
-.03
-14
-10
0
5
timevar

(t)